SOME time ago an official of an eastern steel company asked IRON TRADE REVIEW *the rather leading question, "What is the extent of the loss of steel consumption in New England due to southern migration of the cotton industry?"*

The attempt to answer this question with authority led to an investigation; first to determine what if any textile plants had moved from New England to the South; second to determine the nature of steel used in the textile industry and the location of the plants which fabricate this steel; and third, a general analysis of the entire textile industry.

In running down the various avenues of investigation it was found that it is a fairly popular notion that a large proportion of New England's foremost textile mills have been transported almost bodily to the southern district. Because of the fallacy of this idea, which apparently was in the back of the head of the steel official when he asked about the loss of steel consumption, the present article is here published. It is an attempt to give an unbiased picture of the textile industry in its relation to the steel industry.

Textile Industry Is Important User of Iron and Steel

By H. R. Simonds

AMONG the important groups of iron and steel consumers is the textile industry, which in 1923 ranked second only to food products among American industries in point of value of manufactures, and led all other industrial groups in the number of wage earners employed.

This nine billion dollar industry, which annually consumes a surprisingly large tonnage of steel, is made up of innumerable branches and subdivisions. The major division is that known as cotton goods manufacture, and because it ranks far ahead of the other divisions in importance and because complete statistics covering its activities are available, the present analysis deals largely with cotton spinning plants. Cotton working machinery varies greatly in design, but nearly all spinning machines consist of a battery of spindles, which are fairly uniform in capacity. For this reason the spindle has become the recognized unit for comparisons of the capacity of plants and territories. Fairly accurate statistics on number of spindles in the country are available; therefore an estimate of the steel consumption in the textile industry is most easily made on a per spindle basis.

A leading textile machine manufacturer estimates that the weight of cotton spinning frames in operation in the United States today is in excess of 600,000 tons. This figure may be checked by the fact that an average spinning frame of 272 spindles, weighs approximately 8000 pounds, or 29 pounds per spindle. The total number of cotton spindles in the country in 1924 was 37,-

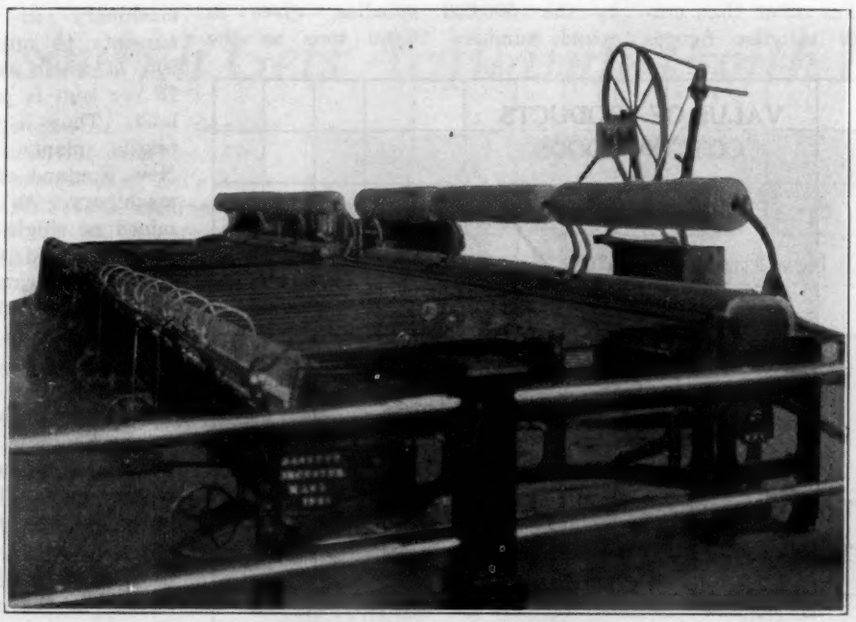

Fig. 1—Modern textile machinery requires rolled steel and ferrous and nonferrous castings and forgings

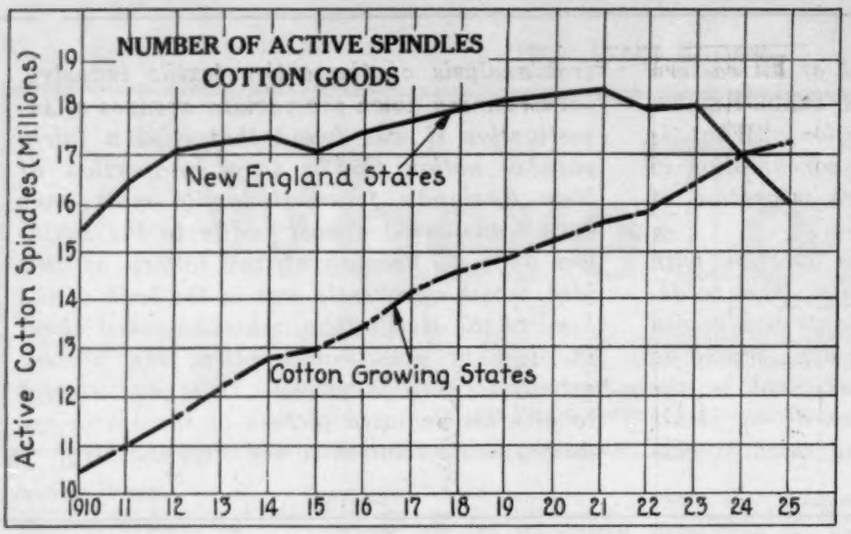

Fig. 2—The trend of development based on number of new spindles is seen to be steeper in the southern states than in New England

800,000, which at 29 pounds a spindle would indicate a total weight of about 550,000 tons which fairly closely checks the estimate of 600,000 tons.

To determine the number of machines required for replacement, it is conservative to take the appraisal engineers' figure for depreciation of 3 per cent per year. This means that to keep the cotton goods industry going at its present rate 3 per cent of 600,000 tons or 18,000 tons of steel are required annually for cotton textile machinery.

Cotton is but one item. Wool, worsted, silk and rayon industries also come under the general textile heading. The government gives the total number of producing spindles for the entire textile field as 48,800,000, leaving approximately 8,000,000 spindles, or 17.4 per cent of the total for the four branches other than cotton. This 8,000,000 spindles figures about 21 per cent of the total number of cotton spindles, and it may be roughly assumed therefore that the steel used for these four smaller branches of the industry may be taken as 20 per cent of the steel used in the cotton branch of the industry.

According to data of the bureau of the census, the average annual increase in number of cotton spindles for the entire United States during the last five years is 500,000. The figure of 29 pounds per spindle for the weight of textile machinery has already been obtained. Other estimates, the detail of which will be shown later, give 30 pounds per spindle for the steel in new buildings to house the expanding industry, and 14 pounds per spindle for auxiliary equipment. This gives a total of 73 pounds per spindle, which multiplied by the 500,000 spindles, gives in round numbers 18,000 tons as the annual consumption by expansion.

Returning to the steel tonnage used in maintaining the industry, an item of 18,000 tons has already been determined for textile machinery. Textile mills are continuously buying tools, piping, condensers, material-handling devices, and compressor and block equipment, all of which is not included under the general heading of textile machinery, and all of which takes a higher rate of depreciation than does textile machinery. In order to get some basis of figuring this auxiliary material, the miscellaneous steel purchased of a mill having 17,000 spindles were taken for a period of three years, and this gave an average of 5 tons per year, or about 0.9 pound per spindle. If this is taken as typical, the entire cotton textile industry of the country would require each year in miscellaneous steel supplies, including machine tools, something over 16,000 tons. This item added to the 18,000 tons determined as the weight of textile machinery required to offset depreciation and obsolescence, makes a total of 34,000 tons, which is the estimate of the annual amount of steel required to keep the cotton textile industry at its present level.

To this item of 34,000 tons must be added the 18,000 tons determined as the steel required in the expansion of the industry, which then gives a grand total of 52,000 tons as the annual consumption of steel in the cotton textile industry of the country.

Now, to obtain the steel for the entire textile industry, 20 per cent of this 52,000 tons, or 10,400 tons, is added, giving a total of 62,400 tons.

The annual production of textile machinery in the United States amounts to approximately $140,000,000, of which amount $105,000,000 or 75 per cent is produced in New England. Thus it will be seen that if textile plants have moved South, New England still makes the textile machinery. As far as can be determined no single textile plant has left New England to start up business elsewhere during the past ten years, so that under this heading there has been no loss in steel consumption in New England.

Contrary to belief New England textile plants have not been moved to the South in the sense that equipment and going business has been transferred. There have been perhaps two exceptions to this.

The southern textile industry has been built up largely from the increase in the foreign and domestic demand for textiles. During the four years from 1920 to 1923 the value of

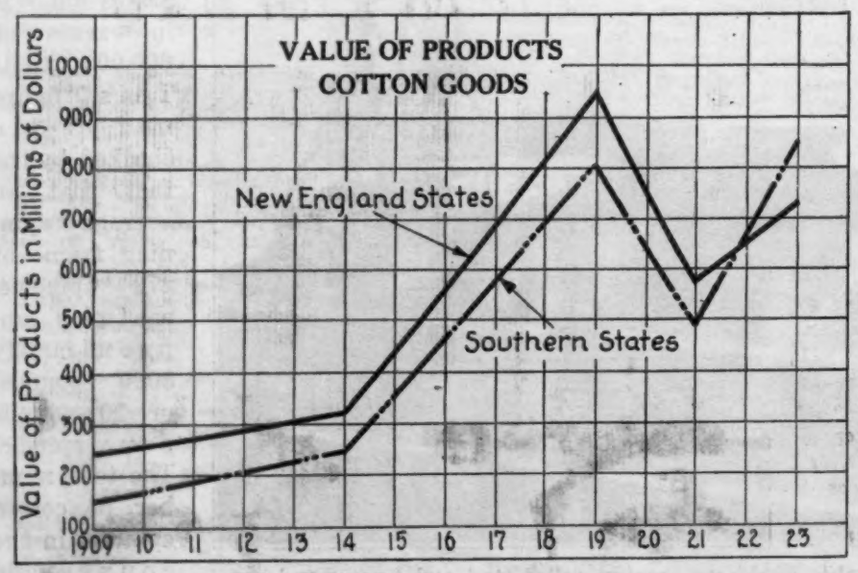

Fig. 3—Until recently New England kept well in the lead in value of products

the production of cotton goods in New England showed a gradual increase. The number of active spindles during these years, however, remained practically constant, and so if steel consumption is based on spindles, no tonnage whatever would show under expansion. In fact, in the years since 1923 there has been a slight drop.

The following table gives the number of active spindles in the New England states as compiled by the bureau of the census:

Year	Active spindles
1920	18,283,000
1921	18,385,000
1922	18,684,000
1923	18,043,000

For the four southern states, Alabama, Georgia, North Carolina and South Carolina, which states contain practically all of the southern cotton textile plants, the number of active spindles was as follows:

Year	Active spindles
1920	13,667,000
1921	14,073,000
1922	14,211,000
1923	14,546,000

The number of cotton spindles in these four southern states has increased during the last five years at an average of approximately 40,000 spindles a year. Therefore, if it is assumed that this expansion had not developed in the South it would have taken place in New England. The steel required for this expansion may be considered as tonnage lost to New England. This, however, would hardly be accurate, for the type of building in the South has been of a higher class than the building of the average textile plant in New England, and therefore, more steel has been used in the southern plant construction.

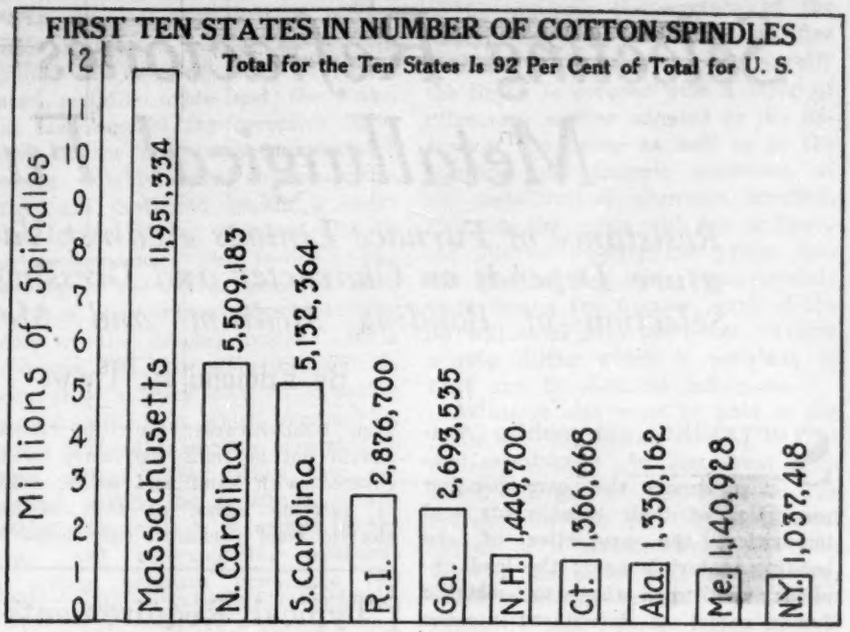

Fig. 4—Despite the rapid development in the southern states, Massachusetts still claims twice as many spindles as any other state

A typical modern southern plant recently completed contains 31,736 spindles, and has 956 tons of structural steel in the building. This figures about 60 pounds of structural steel per spindle. A prominent textile plant engineer estimates that the amount of structural steel in such cotton spinning plants as have been built in New England during the last few years has not been over 30 pounds per spindle. However, in addition to the building steel, there are tanks, pipes and much other steel in a textile plant so that the figure of 60 pounds per spindle seems a fairly conservative estimate for the steel used in a modern textile plant exclusive of the equipment.

On a 40,000 spindle basis, this 60 pounds per spindle would mean 1200 tons. By discounting this to take into account the smaller amount of steel used in typical plant construction in New England, a fair figure would be 900 tons. Under the heading of auxiliary equipment, which should include the standard types of machine tools used in the plant machine shop, trucks

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Pittsburgh Gets Acquainted with Itself

TO make its citizens more familiar with its industrial activities, Pittsburgh has just concluded a "Let's Know Pittsburgh" week. Several hundred local and Pittsburgh district manufacturers conducted exhibits in show windows, vacant stores and other public places over the city, showing the diversity of its manufacturing. These exhibits took in a wide range of products related to the iron and steel and allied industries. One of the larger displays was at 311 Ross street where space was donated by B. F. Jones Jr., chairman of Jones & Laughlin Steel Corp., and owner of the building. The accompanying illustration shows a corner of the Jones & Laughlin exhibit. More than 100 other exhibits were housed there and attracted large crowds day and evening for two weeks.

Selecting Refractories for Use in Metallurgical Furnaces

Resistance of Furnace Linings Against Variations in Temperature Depends on Character and Dressing of Raw Materials, Selection of Bonding Medium and Methods of Burning

By Edmund R. Thews

SOFTENING and melting temperatures of refractories depend upon the corresponding properties of their constituents and impurities; the properties of the bonding materials used; the load applied; and, upon the slag, metallic fumes, gases, etc., introduced into the structure of the refractories throughout the melting processes. The melting temperatures of the different raw materials used in producing refractories are presented in the accompanying table. These figures are more or less of theoretical value to the practical smelter; of much greater practical importance are the softening and melting points of the finished refractories under actual working conditions. Since the shaping of the bricks necessitate the use of bonding materials possessing melting points lower than the burning temperatures of the refractories, the softening points of these are lowered accordingly. The melting points of the most common refractories are:

Grade brick	Melting point, degrees Fahr.
Fireclay	2700 to 2900
Silica	3100
Magnesite	2600 to 2800
Bauxite	2450 to 2500

The softening and melting influence of the furnace temperatures is more or less neutralized by the cooling effect of the outside temperatures, the degree of influence in each case being dependent upon the thickness of wall and the difference in temperature acting upon both sides of the wall. For any given temperature above the theoretical softening point of the refractory an equilibrium is formed which, in dependence upon the softening point of the material, its conductivity of heat, and the outside temperatures, is expressed by a certain thickness of wall. If the actual thickness of a wall exceeds the limit fixed by the equilibrium, the inner surface of the wall begins to melt off until the equilibrium is attained. Furnace roofs exposed to high temperatures, for this reason, should not be built too heavy or be covered with sand and ashes, while in extreme cases, as that of the electric steel furnaces, care must be taken to prevent foundry dust from settling upon the roofs.

The softening point of refractories is lowered by exposure to heavy loads. The melting points free of load and under a load of 2500 pounds per square inch include:

Grade brick	Normal, degrees Fahr.	Under load, degrees Fahr.
Silica	3100 to 3120	2900 to 3000
Magnesite	2800 to 3100	2550 to 2800
Fireclay	2700 to 2900	2450 to 2700
Bauxite	2700 to 2900	2450 to 2700

Wherever the maximum working temperatures of a furnace approach the softening points of the refractory, the lining should be relieved of all unnecessary load. The roof, for this reason, should never be supported on the lining but should rest upon the outer wall. The tie rods must not be drawn up too tight and should be relieved gradually as the temperature increases. Additional loading of the furnace walls with iron construction for the purpose of mounting blowers, ventilators etc., should under no circumstances be permitted.

Uneveness Influences the Life

The softening point of refractories to a large degree is influenced by the use of badly finished, uneven bricks. The exceedingly heavy pressures exerted upon every brick, being concentrated upon the projecting parts of the surface, will cause them to soften at comparatively low temperatures. This reduces the softening points of the neighboring parts and leads to the gradual mechanical destruction of the entire brick. The usual method of compensating uneven surfaces by interposing correspondingly heavy layers of mortar between the bricks can not be condemned too strongly. The surface of the bricks must be ground sufficiently to fit each other and be laid with a thin layer of mortar.

In laying the roof, the most exposed part of the furnace, particular attention should be paid to the shape of the bricks used. If these are shaped so that with a good fit of the lower edges of the brick the upper edges stand apart—the gaps being filled with mortar—the roof will tend to reach an equilibrium, that is, the center of the roof will be lowered until the upper edges have approached each other as far as the resistance of the mortar will permit. This movement exerts an exceedingly strong pressure upon the

Typical Requirements of Refractories

SINCE no universal refractory fulfills all demands, the problem of the engineer is to select for each individual case the refractories possessing mechanical and chemical properties best suited for the most important requirements. All refractories for foundry and metallurgical furnaces should possess the following properties:

1. *High softening and melting points under normal load.*
2. *High resistance against sudden and sharp changes of temperature.*
3. *Chemical inertness against the influence of metals, metallic oxides, fluxes and metallic vapors as well as against the products of combustion and the corrosive influences.*
4. *Least possible change of shape and volume under all practical melting conditions.*
5. *Low conductivity of heat.*
6. *High resistance against mechanical stresses, shocks, blows, etc. in the hot and cold state.*
7. *Uniform composition and production methods of refractories of the same quality and designation.*
8. *Ease of dressing the brick when laying.*
9. *Accurate and uniform measurements.*
10. *Smooth and sharp edged surfaces.*

The author, Edmund R. Thews, is a mining engineer located at Karlshorst, a suburb of Berlin, Germany.

lower parts of the bricks; the combined action of this pressure and the furnace temperature will soon cause dripping of the roof at comparatively low temperatures.

Resistance of refractories against sudden and steep changes in temperature is governed by their structure and density as well as by their conductivity of heat and their coefficient of expansion. Among the ordinary refractories, fireclay bricks are most resistant. Silica bricks are decidedly more sensitive while magnesite bricks may spall and crack at slight changes in temperature. The more porous a brick the more resistant it will prove to be against changes in temperature; above a certain degree of porosity, however, it will, on account of the corresponding reduction in mechanical strength, tend to scale and chip.

Installation Method Important

The resistance against changes in temperature is governed by the character and dressing of the raw materials used, by the selection of bonding substances, and by the methods of burning. Equally important are the methods employed in brick laying and in drying and heating the furnace. Bricks should be laid as dry as possible. Heavy layers of wet mortar in addition to other disadvantages cause the absorption of large quantities of moisture by the bricks which, on drying and heating the furnace, must be expelled. The steam thus formed weakens the structure more or less and promotes spalling and chipping of the bricks. Best results are obtained by merely dipping the bricks into a dilute emulsion of the mortar.

In drying the furnace the temperature must be raised slowly and evenly. Whenever generation of steam is noted at any place, the temperature should be made to remain constant until steaming has ceased. The temperature of the furnace finally should be raised until glazing of the bricks ensues, since this affords a certain amount of protection against scaling. In recognition of this fact many smelters like to promote the formation of glazes by treating the lining surfaces with low-melting substances. This under ordinary circumstances should be condemned. Many substances, as for instance strongly alkaline chemical, penetrate deeply into the bricks and weaken them against the influence of heat and mechanical stresses; others cause the formation of glasses which, on account of the different coefficient of expansion, chip off easily, roughening and weakening the surface of bricks.

The chemical inertness of refractories must not be directed merely against the slagging effect of partly fused metallic oxide and the slags, but also against the corrosive influences of the flue gases and metallic vapors. Highly heated fireclay bricks often are destroyed within a short time by the action of gases rich in carbon monoxide. This is due to the reaction of the carbon monoxide with the free or semifree iron oxide contents of the fireclay bricks. It is supposed that this oxide primarily is reduced to a lower state of oxidation or to metallic iron, which, secondarily, reacts with other carbon monoxide to form carbon. The carbon thus deposited within the structure of the bricks afterwards is regasified by the heat, and in expanding exercises a strong pressure upon the cell walls, thus promating chipping and cracking of the bricks. The corrosive action of ordinary fire gases is of course more or less increased by chemical gases formed by the different metallurgical reactions.

Melting Temperatures of Raw Materials

Constituent	Melting point, degrees Fahr.
Bauxite	3000 to 3200
Alumina	3650 to 3750
Aluminum silicate	3350 to 3400
Magnesia	5075
Spinel	3500 to 3900
Silica	2900 to 3100
Diaspor	3350 to 3450
Carborundum (decomposed at)	4050
Zirconia	5000 to 5400
Zircon	4500 to 4700
Kaolin	3150
Anorthite	2800

Porosity Influences Inertness

While the inertness of the refractories against chemical influences is governed by their chemical nature, it is influenced to a high degree by the porosity, that is, by the capacity of absorbing chemically active gases and vapors, which after reacting with the bonding material and the finer particles of the refractory gradually will attack the coarser particles. This causes a decided lowering of the softening points. Since porosity in general is one of the main requirements of refractories, chemical inertness of the bricks may be achieved only by closing up the pores of the surface, either by glazing or by filling with finely powered materials inert to the influence of heat and the chemical reagents in question. This may be accomplished either by dipping the bricks into mortar emulsions of correct composition or by washing the surface of the lining, the pores absorbing the fine particles of the emulsion. Frequently the lining is covered with a layer of refractory mortar adapted to the nature of the lining as well as to the chemical and thermic conditions of the metallurgical processes involved. Painting the lining with tar or heavy tar oils or dipping the bricks into tar oil also has been recommended; upon drying the furnace, part of the oil will enter into the pores forming a coke filling which is resistant to heat and to chemical influences.

Attention also must be paid to the joints of the lining which, if not entirely closed, will expose a much larger surface of the brick to the corrosive action of the gases and vapors or if situated below the surface of the metal will cause underwashing of the bricks. Open joints primarily are due to badly dressed surfaces and to the use of too heavy layers of unsuitable mortar compositions, while vertical joints are caused by faulty drying and heating as well as by insufficient binding and armoring of the furnaces. Since moderately open joints with the best of care may not be prevented entirely, recourse often is had by the use of larger size bricks, which while not entirely eliminating the danger, will at least cause a decided reduction of the total number of joints, decreasing the source of difficulty accordingly.

Conductivity May Vary

High conductivity of heat may or may not be a desirable property of refractories. While as a rule low conductivity is required for economical and technical reasons, safety of the lining occasionally may demand the use of highly conductive materials. Furnaces with high working temperatures may require refractories of high thermic conductivity for walls and roof while the bottom must be built of refractories of low conductivity to properly protect the foundation against excessive heat.

The conductivity of heat has been experimentally determined for most refractories by several authorities, the most useful figures having been given by Dougall, Hodsman, Cobb and Dudley. According to these authorities the following formulas may be used to determine the thermic conductivity C at the temperature t for magnesite bricks:

$Ct = 0.0285 - 0.379^{t} + 0.179\ (10 - 7t^{2})$ for fireclay bricks

$Ct = 0.00155 + 0.25\ (10^{5}t)$

wherein C = gram calories for 1

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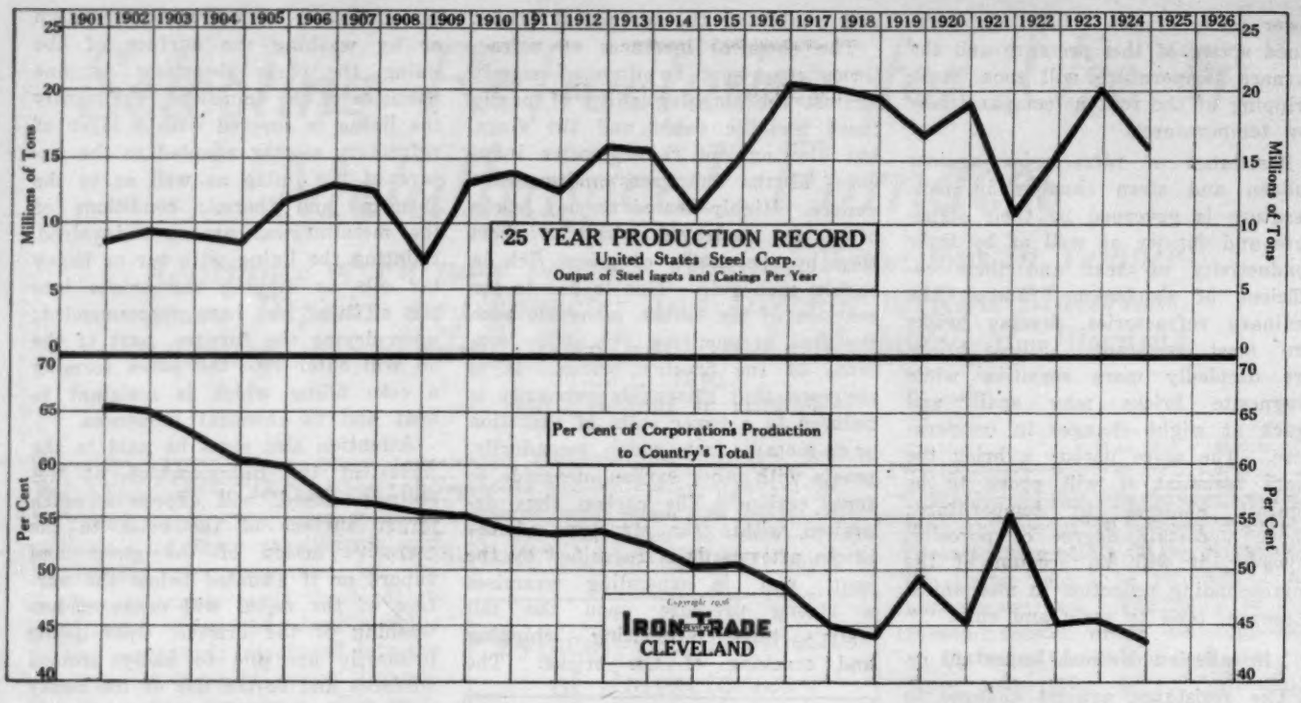
1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926
Millions of Tons
25 YEAR PRODUCTION RECORD
United States Steel Corp.
Output of Steel Ingots and Castings Per Year
Per Cent of Corporation's Production to Country's Total
Per Cent
IRON TRADE REVIEW
CLEVELAND

Steel Corporation's 25 Years Fosters Business Stability

By John W. Hill

TWENTY-FIVE years ago today, Feb. 25, 1901, there came into formal existence a new corporation, more gigantic in size and more powerful in resources than any other industrial organization in all the world's history. The new-born combination was christened the United States Steel Corp. Its parents and its godfathers were outstanding names in the world of business and finance. The birth of the corporation at the threshold of a new century, was timed with the dawn of a new era of unsurpassed natural progress. Its corporate life has spanned a quarter century with stupendous events and revolutionary changes affecting nearly every important social and economic phase of human activity.

How Finished Capacity Grew With Years

Gross Tons

1901	7,719,000
1909	13,210,000
1910	13,400,000
1911	14,000,000
1912	14,000,000
1913	14,060,000
1914	15,540,000
1915	13,820,000
1916	15,460,000
1917	16,110,000
1918	16,110,000
1919	16,110,000
1920	16,110,000
1921	16,540,000
1922	16,520,000
1923	16,670,000
1924	16,740,000
1925	16,800,000

THROUGHOUT this brilliant period, marked by tremendous industrial expansion, by an amazing elevation of standards of living, and by the most devasting war of all the ages, the Steel corporation has held steadfastly to a sober, even course. So steady and conservative have been its policies that it has been called a "stabilizer of industry". With the swift rising requirements in an era characterized by the multiplication of uses for steel, the corporation has increased its capacity and its plants. But it has indulged in no program of aggressive expansion. Independent plants have spread their wings much faster than the Steel corporation. One of the most notable and significant facts in the development of the corporation is that its proportion of output to the country's total is considerably smaller today than it was in 1901.

There are other outstanding facts which come to view with the completion of the first 25 years of the corporation's life.

1, The guiding genius of the destinies of the corporation at its beginning, Chairman E. H. Gary, still remains at the helm.

2, The surplus of the corporation has grown from the nest egg of $25,000,000 in 1901 to more than $500,000,000.

3, The capacity of the plants have been increased by more than 100 per cent in 25 years.

4, Despite the expenditure of

hundreds of millions in improvements and extensions the capital stock and funded debt of the company has been increased but $7,000,000 since 1901. The total then was $1,402,000,000. Now it is $1,409,000,000.

Earning Power Is Moderate

Still another striking fact is disclosed in an analysis of the corporation's history. This is the moderate increase in earning power compared with extensive increase in capital investments and surplus. In 1902 the first full year of the corporation's operations when finished steel capacity was 7,719,000 tons, earnings amounted to $133,303,000 with a gross business of $560,510,000. In 1924 the finished steel capacity had increased by 118 per cent to 16,800,000 tons. In that year the net earnings amounted to $161,183,000 a gain of only 21 per cent, while the gross business of $1,263,000,000 showed an expansion of 125 per cent. Manifestly the earning power of the corporation has not grown with the expansion of its resources. In this is seen the results of the forces at work making for low prices and for narrow margins of profit throughout the steel industry.

In the first year of its life the corporation produced 8,854,820 tons of steel ingots and steel castings. This was 65.7 per cent of the total output for the country. That marked to supply a higher proportion than it did in the good years.

The twentieth century launched a great industrial expansion program which brought with it stupendous demands for iron and steel. Steel in fact in an age of power and machinery has become the universal metal. Independent producers expanded on a much more rapid rate than did the Steel corporation. As shown by the accompanying chart, the per cent of output made by the corporation declined to 65.2 per cent in 1902 and continued to drop until in 1924, the ratio was only 43.4 per cent. It is interesting to note that in bad years the Steel corporation tended to have a higher rate of proportion than it did in the good years.

Since its formation the Steel corporation has poured many millions of profits back into the plant and to additions and improvements of producing equipment. In 1901 the aggregate finished producing capacity of the companies joined together into the great producing unit, as has been noted was 7,719,000 tons. This increased to 13,210,000 tons in 1909. By 1913 the finished capacity was 14,540,000 tons. The World war gave the expansion program a fresh impetus and by 1920 the capacity was 16,540,000 tons. In recent years there has been only moderate increase.

In 1902 the first full year of the corporation's existence and the first year for which figures of employment are given. The aggregate number of employes was 168,127. The combined total for salaries and wages for that year was $120,528,000. In 1924 the latest year for which employment figures are available, the number of employes during twelve months was 246,753. The aggregate pay roll for the year was $442,458,577. The increase for the number of employes from 1901 to 1924 was 46 per cent. The increase in the total pay rolls was 268 per cent. This helps explain the great increase in production costs.

One of the most striking features of the quarter century's history is the accumulation of undivided surplus. The capital surplus provided at the time of organization was $25,000,000. At the end of 1901 the surplus stood $43,620,940. At the end of 1902 it stood at $77,874,597. It reached its peak in 1920 with the total of $538,068,000. At the close of 1924 the balance of undivided surplus was $517,061,308. The surplus added in 1925 was about $4,000,000, making a total at the end of 1925 of approximately $520,000,000. In addition the corporation has some $200,000,000 of surplus appropriated to cover capital expenditures. This makes a total surplus of more than $700,000,000. In 1901 there was a net working capital of $156,000,000 of which $55,000,315 was cash. At the end of 1924 the net working capital of $428,000,000 of which the sum of $181,000,000 was in cash and marketable securities.

Increasing confidence in the value of the corporation's assets and in its securities is seen by the fact that while in 1904 the common stock sold as low as $8 a share in 1925 the stock rose to above $136 a share. The book value of the common stock is estimated at $273 a share. The company has been criticised for its extremely conservative dividend policy but it has stuck to the husbanding of its cash

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Controlling Personalities 25 Years Ago and Now

1901

OFFICERS

Elbert H. Gary, Chairman.
Charles M. Schwab, President.
James Gayley, First Vice-President.
Francis Lynde Stetson, General Counsel.
Richard Trimble, Treasurer and Secretary.
Edward Shearson, Comptroller.

DIRECTORS

J. Pierpont Morgan.
John D. Rockefeller.
Henry H. Rogers.
Charles M. Schwab.
Elbert H. Gary.
George W. Perkins.
Edmund C. Converse.
Percival Roberts, Jr.
Francis H. Peabody.
Charles Steele.
William H. Moore.
Norman B. Ream.
Peter A. B. Widener.
James H. Reed.
Henry C. Frick.
William Edenborn.
Marshall Field.
Daniel G. Reid.
John D. Rockefeller, Jr.
Alfred Clifford.
William E. Dodge.
Nathaniel Thayer.
Abram S. Hewitt.
Clement A. Griscom.

FINANCE COMMITTEE

George W. Perkins, Chairman.
Henry H. Rogers.
Norman B. Ream.
P. A. B. Widener.
Charles M. Schwab, Ex-officio.
Elbert H. Gary, Ex-officio.

1926

OFFICERS

Elbert H. Gary, Chairman.
James A. Farrell, President.
David G. Kerr, Vice-President.
John Reis, Vice-President.
Nathan L. Miller, General Counsel.
William J. Filbert, Comptroller.
Fred M. Waterman, Treasurer.
George K. Leet, Secretary.

DIRECTORS

George F. Baker.
Eugene J. Buffington.
James A. Farrell.
Elbert H. Gary.
J. Pierpont Morgan.
George F. Baker, Jr.
William J. Filbert.
Samuel Mather.
Thomas Morrison.
John S. Phipps.
William P. Palmer.
Percival Roberts, Jr.
Robert Winsor.
Nathan L. Miller.

FINANCE COMMMITTEE

Elbert H. Gary, Chairman.
George F. Baker.
James J. Farrell.
William J. Filbert.
Nathan L. Miller.
J. Pierpont Morgan.
Percival Roberts, Jr.

Decision Opens Door

MILLIONS of dollars in tax refunds may be made to those in the metalworking and related fields because of a recent tax decision made by the United States Board of Tax Appeals. Under this ruling almost every company which paid excess profits taxes may be entitled to a refund.

Readers will recall that in the years when excess profits taxes were paid, that is the heavy tax years, 1917 to 1921 inclusive, the regulations issued by the government to interpret the revenue laws required those who paid excess profits taxes in 1917, 1918, 1919, 1920, and 1921 to reduce their invested capital, by a proportion of income taxes paid each year.

Now the United States Board of Tax Appeals has ruled that this portion of the regulations is illegal.

An idea of the tremendous amount of money involved in this decision may be had from the fact that interest, alone, on refunds for the years affected runs into large figures. Even for 1921 interest will amount to 21 per cent. This figure increases at the rate of 6 per cent for each previous year affected; that is, 27 per cent for 1920, 33 per cent for 1919, and 39 per cent for 1918.

Although the United States Board of Tax Appeals has issued a number of important decisions, this is the one of greatest importance to all taxpayers.

In considering whether you may receive a refund as a result of this decision, bear in mind that even the heaviest tax years, 1917, 1918, and 1919 are open in a great many cases, to say nothing of 1919 and 1920 against which the statute of limitations has not yet run. The thing which operates to hold open the years 1917, 1918, and 1919 in most cases is the fact that the 1924 revenue act is different in its refund provisions from the other tax laws.

However, these very provisions of the 1924 tax law operate to bar claims on odd dates rather than on the statutory filing date of March 15. In other words, your claim may be barred next week, or the week following.—The Author.

Tax Refunds Are Made Possible

Large Tax Payments May Be Recovered As a Result of United States Board of Tax Appeals Ruling On Excess Profits Tax—How Accelerated Depreciation May Be Set Up As Claim

By W. B. Swindell, Jr.

Within the last few years quite a number of taxpayers, some of them in the metalworking field, have received substantial tax refunds or reductions as the result of increased depreciation allowed them by the government based on their claims that abnormal conditions caused their properties to wear out more quickly than is customarily the case.

One case of special importance has been passed on by the United States Board of Tax Appeals. It is a good example of how accelerated or quickened depreciation operates to reduce taxes as well as profits. In this particular instance, the board reduced by a tremendous sum the amount of additional tax which the commissioner of internal revenue proposed to assess against the company.

Prior to the World war, this corporation was engaged in the manufacture of a commodity for which the machinery could not be obtained in this country but had to be imported from Europe. Likewise, whenever it became necessary to make repairs on the machinery or replacements of any of the parts, these also had to be procured from abroad.

When the war came the supply of repair parts was cut off. There were some left in a reserve on hand but they were quickly used up. Then, in order to continue in business, the company was forced to begin the dismantling of some of its machines to get parts for repairs. By the end of 1918, several of the machines originally on hand in 1914 had been used up for repairs and even then the remaining machines had been seriously damaged because of the lack of new parts.

Five per cent was considered the normal rate of depreciation on the machinery used in the manufacture of the company product. However, in view of the conditions prevailing in this case, the commissioner of internal revenue allowed a higher rate. But the company was dissatisfied with the commissioner's allowance and appealed to the board. After a full consideration of the case, the board granted a substantial increase in the allowance for depreciation and repairs, thus reducing by a large amount the tax liability of the company.

There are quite a number of cases similar to the one just cited. Increased depreciation does not always arise from a lack of proper repair parts. It may result from any number of things. For instance, in order to operate two or three shifts during a 24-hour day it is necessary to work the equipment overtime or employ new workmen. This results in several men having charge, at different times during the 24 hours, of each machine. Among manufacturers it is common knowledge that when you divide responsibility for the care and upkeep of machinery, the machinery suffers noticeably as a result thereof. Each shift expects the others to do the major part of the upkeep work. Also, men used in a third shift and sometimes even in a second shift are not always as responsible as the regular employes.

All of these things combine to expedite the exhaustion of the machinery, equipment, and other properties.

Manufacturers, or any other taxpayers, who are familiar with machinery do not have to be told that machinery must rest just like anything else. If machinery is worked 24 hours a day there is no time for repairs. The lack of some small repair places a greater strain on part or all of the other equipment. Defer repairs long enough and you will shorten the life of your equipment to an amazing extent.

During the war period even the first shift of the day had to be made up, to some extent, of men who were not experienced in their work. Manufacturers faced a problem of demand exceeding supply by an appalling amount. It was necessary to put on men who were by no means qualified to do the work for which they were hired. Even with the greatest supervision the ignorance or neglect

of these men made a noticeable difference in the life of the machinery and other properties with which they worked. Damage done by unskilled workmen was not always remediable by direct repairs—frequently these injuries took the form of increased wear and tear—that is, they simply sped up the depreciation.

In a number of cases the treasury department has recognized these factors as materially affecting the lives of assets. There is, in my judgment no reason why taxpayers who have encountered such conditions as these—and most of the war manufacturers have—should not amend their depreciation claims if they think in the light of these conditions that they have taken insufficient amounts.

Two Shifts Increase Depreciation

From my experience with concerns in the metal industry, I am sure that the thing which has contributed as much as anything else toward shortening the lives of their assets has been the working of 16 and 24-hour shifts. While the World war was going on factories were running at the maximum capacity—in the effort to supply the Allies with munitions and other supplies indispensable to warfare. A great many of the factories engaged in producing iron, steel, and metal products of all kinds, were being operated more than one shift a day. Consequently a great many of these companies used their properties, that is, their machinery, equipment, and other assets, to such an extent that they materially decreased their useful lives. Of course in some companies the increased strain was exerted only on a few machines. In others every machine—and almost every piece of property used directly or indirectly in the manufacture—was subjected to a severe strain.

However, it should be remembered that in making claims for higher depreciation rates for any years because of such conditions as just mentioned, it should be clearly shown just what assets are most affected by the unuual wear and tear. The matter should be set up in such a way as will show the government the true conditions and will convince it that a heavier loss because of depreciation has been sustained than has been deducted for on previous returns.

For example, the normal rate allowed by the treasury department on brick buildings is about 3 per cent but there are circumstances similar to those cited here where, because of increased vibration or other circumstances, the building will depreciate at a considerably higher rate than 3 per cent.

Remember one thing in particular in dealing with the government. Very few, if any, claims have ever been disallowed because of too much information. The government, which is composed of human beings, is bound to be impressed with the frankness and the desire to co-operate which is evident when a taxpayer submits an abundance of information to prove a certain point. If you wish to prove that your assets have suffered because of an undue strain arising out of conditions peculiar to the World war or if there are any other conditions which have shortened or will materially shorten the lives of your properties tell the government about it fully. Submit every possible bit of information to substantiate your claims. Frequently the difference between complete and incomplete evidence is the difference between allowance and disallowance of claims.

One other thing. Thousands—if not millions—of dollars may be lost in possible refunds if tax-payers do not get in their claims for refund for the years 1920 and 1921 by March 15, this year, 1926. After that date your chances for obtaining a return of any taxes overpaid for 1920 and 1921 will be barred by the statute of limitations.

Now, I do not say you should file claims for these years just on "general principles." Be sure you have something on which to base a claim for refund before you file one with the government. One thing, however, I would urge that you do at once. Look over your returns and papers and see how you stand for 1920 and 1921. While you should not clutter up the government files with useless claims, you should protect your rights. To discover several months or years from now that you are entitled to a refund for either year or both of them would be very disheartening if you found this out too late to put in a claim.

Simplifies Roll Changing

A new top for open-top housing mills was developed during the past year which greatly simplifies roll changing. In the new design the entire screwdown mechanism is installed on an entablature which constitutes the top of the mill. This top is attached to the mill housing by four keys. By removing these keys the entire top of the mill may be lifted off by the crane, leaving the top of the mill open. The time involved for changing rolls in this new type mill is only a fractional part of that which ordinarily is required.

Choosing Refractories for Furnaces

(*Concluded from Page* 509)

square centimeter a second through a plate 1 cubic centimeter thick and a fall of temperature of 1 degree Cent.

The figures resulting from these formulas do not, however, give absolute values, representing average conditions only. Strongly burned, dense bricks possess higher thermic conductivities than porous, pervious materials; the conductivity of new bricks differs from that of old and used bricks impregnated with slag and metallic vapors. Besides, the number and width of joints and the kind and density of the mortar must be considered.

Resistance of refractories against mechanical stresses depends on the composition and structure of the bricks, the temperature of the stressed material and the change of structure by practical furnace conditions. A brick impregnated with metal or slag at a temperature of, say, 2000 degrees Fahr. will be insensitive to ordinary stresses, such as the impact of falling bars of metal, while the same bricks in fresh condition at a temperature of 1000 degrees Fahr. may crack at much lesser stresses.

The methods of drying and heating new furnaces possess a deciding influence upon the resistance of the refractories. Too rapid drying will cause internal strains which may either cause immediate formation of cracks or lead to cracking as soon as stressed.

Since accurate and uniform measurements and smooth, sharp edge surfaces can not be attained in commercial manufacturing processes, the bricks have to be dressed by the bricklayers. Good workability, therefore is a valuable property of refractories. A typical example of bad dressing properties are magnesite bricks. The hardness and crystalline structure of this grade make almost impossible the production of as smooth and even a surface as may be obtained with good fireclay bricks. Magnesite bricks spall and chip easily and will break under comparatively small strains. Grinding and rounding off corners etc., must be absolved with the greatest of care, so that a comparatively large loss from breakage results and the efficiency of bricklaying is lowered.

Wagner Malleable Iron Co., Decatur, Ill., has increased its capitalization from $250,000 to $400,000.

Making High Grade Steel-VI

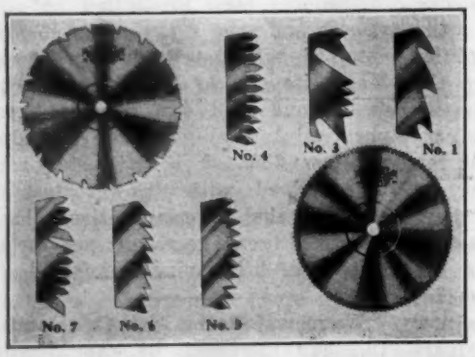
Metal for Band, Circular and Gang Saws, Cutlery and Engraving Plates Requires Close Control of the Melting and Finishing Processes

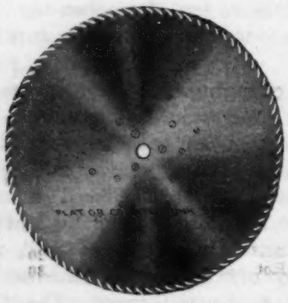
By John A. Coyle

SWEDISH iron usually is the base raw material of crucible steel intended for band saws. The practice has been to make band saws from flat ingots, hammered to slab form and then rolled to thickness on a band mill. Steelmakers who do not have a band mill, schedule band saw orders on a sheet mill, using artifices unique and interesting. Originally it was the practice to accept band saws with two rolled edges. These edges represented the edge of a flat ingot next to the sides or joints of the ingot mold. Honeycombing, caused by employing cold ingot molds or incipient cracks or checks, resulting from finning at the joints of the mold, prompted the current practice of shearing the edges of a rolled band. The camber of the band makes the shearing operation difficult. These precautions are taken to avoid split teeth caused by honeycombs or laminations. A single split tooth may cause a band saw to be cut narrower and lead the consumer to relegate the saw to the scrap heap as a matter of safety. A loss of material and labor is not readily absorbed by the sawmaker. Care must be exercised in making the steel and in forming it into saws so that the band saws, which operate over pulleys at about 7000 feet a minute, will resist the strain caused when heavy logs are fed abruptly against them.

A mechanical condition always is present in band saw steelmaking because of the length of the section as rolled. The plates are slightly buckled, and, while their contour appears straight to the untrained eye they are bowed or cambered sidewise by the hardening treatment. This distortion arises from unequal heating and from the rolling temperature being too low. Because of this condition band saw stock sometimes is hot rolled to a few thousandths of an inch of the finished thickness, then annealed and cold rolled to the gage specified. The analysis of band saw steel originally corresponded to that of modified straight-carbon tool steel. In recent years alloys have been added to obtain certain physical qualities. Former and recent standards of analyses of band saw steel are presented in the accompanying table.

Accumulation of orders due to graphite scarcity helped effect a change of fluid steel quality in the dividing line between band saws and circular saws and other saw products. While the electric furnace to a large extent took the place of the crucible furnace, crucible steel still ranks as a high standard for saws. A good





A few varieties of circular saws

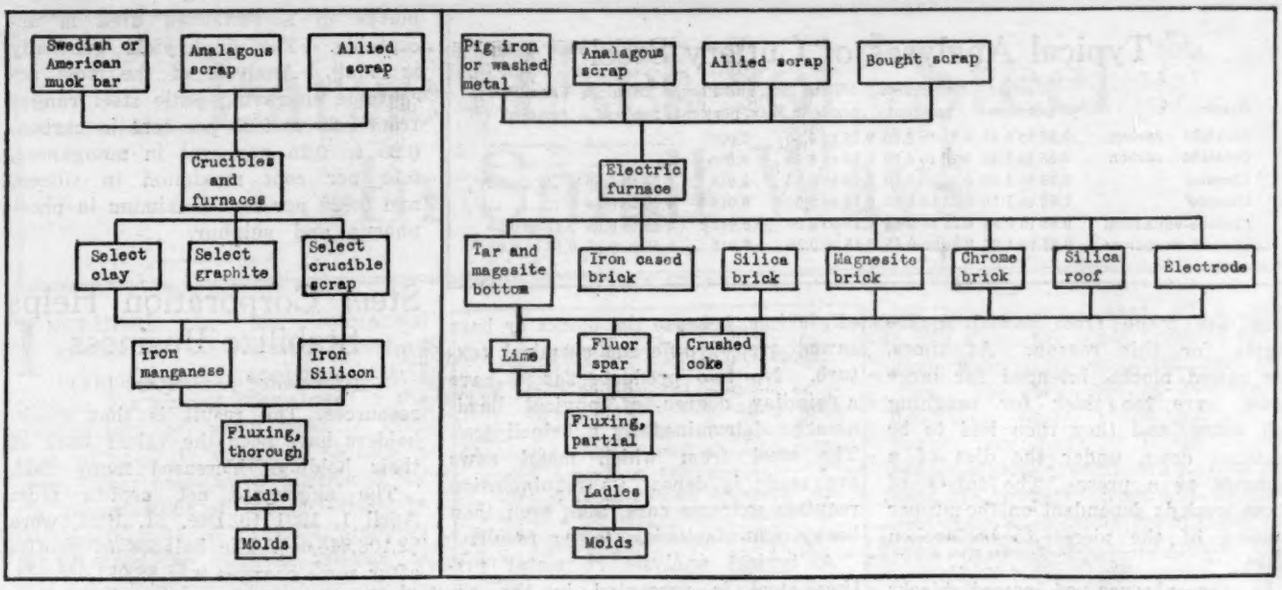


CHART SHOWING THE VARIOUS STEPS INVOLVED IN THE MANUFACTURE OF CRUCIBLE AND ELECTRIC STEEL

grade for circular saws and kindred finished product, however, is made by the electric furnace. The slag of electric furnace steel has a greater tendency to become entrapped than in crucible steel when the performance of the crucible furnace is well conducted. The steps involved in the crucible and electric furnace processes of steelmaking are shown in the accompanying chart.

The peripheral speed of a 56-inch saw is about 9000 feet a minute. Since contact between a circular saw operating at this speed and the log to be cut, sets up a terrific resistance strain, it is reasonable to assume that the steel must be sound.

Originally, the raw material base for circular saws was the same as band saws, namely, Swedish iron. Experience with circular saws later permitted the steelmaker to use American iron and selected scrap. The first ingots were of the flat or sheet type. Then Whitworth with a plunger plug compression of 1500 pounds per square inch compressed steel poured into a sheet-iron mold surrounded with rammed silica sand. The 14-inch round ingot was dug from the sand, which had baked and fused to the sheet-iron mold and then centered in a cutting-off lathe improvised from an old roll-turning lathe. High-speed steel for slicing the ingots into blocks was not available at that time and the flinty fusion of sand wore out the cutting edge of the tools to such a degree that the output of fluid compressed circular saw steel was small. Its production finally was discontinued when a price reduction forced manufacturing economies. When the price still was high the lathe was operated continually to accumulate a stock of blocks. Extreme speed certainly is not economical for quality production. Manufacturers of tonnage products on many occasions have called attention to the danger from inordinate speed of production. As is the case with high-speed steel, competition in the saw trade influenced saw makers to take advantage of price situations. The steelmaker, forced to protect his earnings, endeavors to make a good material in double the quantity. This set up competitive conditions to which factors of over-production in many plants directly are traceable.

Within recent years the practice has been to finish pour a 14 or a 12-inch octagon-shaped ingot through a hot top or sink head. These ingots then are sawed into suitable blocks by a hot saw, the thicknesses being regulated by the diameters and gages of the circular saw plates required. This development starting with the Whitworth compressed method was for the purpose of producing steel free from split teeth. Sheet rolled saws, of small diameter and thin

Typical Analyses of Band Saw Steel

FORMER STANDARDS

	Carbon %	Manganese %	Silicon %	Sul. and Phos. Max. %	Chromium %	Vanadium %	Nickel %
Band saw	0.68 to 0.75	0.25 to 0.35	0.15 to 0.20	0.025	.....	.....	.....

RECENT STANDARDS

Band saw	0.68 to 0.75	0.30 to 0.40	0.10 to 0.20	0.020	0.35 to 0.45	0.15 to 0.25	.....
Band saw	0.68 to 0.75	0.20 to 0.30	0.15 to 0.20	0.015	0.25 to 0.35	0.25 to 0.35	.....
Band saw	0.68 to 0.75	0.20 to 0.30	0.15 to 0.20	0.015	.....	.....	1.20 to 1.30

Typical Analyses of Circular Saw Steel

FORMER STANDARDS

	Carbon %	Manganese %	Silicon %	Sul. and Phos. Max. %	Chromium %	Nickel %
Lathe saws	0.78 to 0.83	0.30 to 0.40	0.10 to 0.20	0.020	.....	.....
Yellow pine saws....	0.83 to 0.88	0.30 to 0.40	0.10 to 0.20	0.020	.....	.....
Standard saws	0.85 to 0.95	0.30 to 0.40	0.10 to 0.20	0.020	.....	.....
Shingle saws	1.10 to 1.25	0.30 to 0.40	0.10 to 0.20	0.020	.....	.....

RECENT STANDARDS

1.	0.80 to 0.90	0.20 to 0.30	0.15 to 0.20	0.025	.....	1.20 to 1.30
2.	0.85 to 0.95	0.25 to 0.35	0.15 to 0.20	0.020	0.40 to 0.50	1.20 to 1.30
3.	0.85 to 0.95	0.20 to 0.30	0.15 to 0.20	0.20	.....	1.40 to 1.60
4.	0.85 to 0.95	0.20 to 0.30	0.15 to 0.20	0.015	0.20 to 0.30	2.25 to 2.75

Typical Analyses of Metal Cutting Steel

FORMER STANDARDS

	Carbon %	Manganese %	Silicon %	Sul. and Phos. Max. %	Chromium %	Tungsten %	Nickel %
Cold metal..	1.15 to 1.25	0.20 to 0.30	0.15 to 0.20	0.025	.....	.....	.....
Hot tube....	0.70 to 0.75	0.30 to 0.40	0.10 to 0.20	0.020	.....	.....	.....

RECENT STANDARDS

Cold metal	1.15 to 1.25	0.45 to 0.55	0.35 to 0.45	0.020	0.55 to 0.65	0.95 to 1.105	.....
Hot tube....	0.70 to 0.75	0.30 to 0.40	0.10 to 0.20	0.020	.....	.....	1.25

Typical Analyses of Cutlery Steel

Grade	Carbon per cent	Manganese per cent	Silicon per cent	Sul. and Phos. Max. per cent	Chromium per cent	Vanadium per cent
Straight carbon	0.85 to 0.95	0.25 to 0.30	0.15 to 0.20	0.020	.....	.....
Straight carbon	0.95 to 1.05	0.25 to 0.30	0.15 to 0.20	0.020	.....	.....
Chrome	0.90 to 1.00	0.25 to 0.30	0.15 to 0.20	0.015	0.70 to 0.80	.....
Chrome	1.00 to 1.10	0.25 to 0.30	0.15 to 0.20	0.015	0.70 to 0.80	.....
Chrome-vanadium	0.85 to 0.95	0.25 to 0.35	0.15 to 0.20	0.015	0.45 to 0.55	0.15 to 0.25
Chrome-vanadium	0.95 to 1.05	0.25 to 0.35	0.15 to 0.20	0.015	0.45 to 0.55	0.15 to 0.25

gage are made from sawed square ingots for this reason. At times, the sawed blocks, intended for large saws, were too thick for roughing roll entry, and they then had to be smashed down under the dies of a hammer or a press. The safety of press work is dependent on the proper heating of the pieces to be broken down.

In the absence of sawed blocks for single circular saws in some of the specialized mills catering to the trade, the practice is to roll a plate ingot to suitable thickness for the finishing mill. After shearing it to an oval shape and reheating the molder, as it is called, is passed between chilled rolls until the desired gage is obtained. With each succeeding pass the plate is turned one eighth of its circumference so as to have an even distribution of metal at all rim points. After rolling to gage the saw plate is replaced in furnace for a strain relieving anneal, and then transferred to a clamp or flattening bed to take out bowl or dish. Flattening of the steel frequently is accomplished by passing it through a roller leveler built with five sets of rolls.

The shearing to circle of rolled circular saw plates never has been done satisfactorily on rotary shears, because the pull of the knives checks or cracks the hard steel. The shearing is done satisfactorily, however, by biting off the steel on straight knives to a laid out and scribed circle. Again, with deep throat shears, a series of segment knives will make up a complement of tools for almost any given circle.

Analysis Has Wide Range

The chemical analysis of circular saw steel has a wide range for various uses. The most satisfactory standard of analysis is presented in the accompanying table. As with band saws, various chemical combinations are in the course of development. Molybdenum and other alloys have been added in small amounts.

Steel intended for metal cutting circular saws is difficult to process because of manufacturing breakage. Complaint over the performance usually arises, because the blocks or bars sawed are of different chemical texture. No two products sawed have a similar degree of phyical hardness as determined by a brinell test. The steel from which metal saws are made is dense; its manipulation requires extreme care, and, even then heavy manufacturing losses result.

A typical analysis of metal cutting steel is presented in the accompanying table. As with other saw steel products, research is being made to better the product.

Gang saws originally were made with a Swedish iron base. Because of the character and influence of gang saws on the sawmaker's trade, care usually is exercised in the rolling process to keep strains out of the steel. Failure of gang or other saw steel may arise from under heating or over rolling or both. The analysis of gang saw steel is similar to the standard for circular saws. The carbon standard ranges from 0.90 to 1.00 per cent.

The manufacture of nonblistering cutlery steel is attended by the uncertainties which once persisted in dead-soft stamping steel. Where the blistering in the latter product was brought out in pickling, blistering of cutlery steel is brought out in annealing. Hence, chemical balance, well-timed solidification and soundness and cleanliness are prerequisites. Analyses of cutlery steel, with some higher and some lower carbon ranges, are presented in an accompanying table.

Engraving plate steel has many requirements to meet. The steel must be soft enough to etch clean, hard enough to cause the etched chip to break off rather than hang, soft enough to grind and polish freely, hard enough to take a mirror polish free from high and low light shadows and absolutely clean. Frequently the fabricating process will uncover any defects particularly on the first grinding pass. On later passes a mark as small as the point of a pin will show up. At times it will disappear, at others be accentuated. If such points do not disappear, the high and low light shadows will condemn the steel because only a stated number of pene marks in a restricted area is acceptable. The final yield generally is small. Analysis of the most acceptable engraving patle steel ranges from 0.20 to 0.25 per cent in carbon, 0.20 to 0.25 per cent in manganese, 0.10 per cent maximum in silicon, and 0.020 per cent maximum in phosphorus and sulphur.

Steel Corporation Helps Stabilize Business

(*Concluded from Page* 511)

resources. The result is that stockholders have seen the values back of their holdings increased many fold.

The aggregate net profits from April 1, 1901 to Dec. 31, 1924, were $2,108,848,640. The balance of profits after some charges was $2,081,008,664. Total dividends paid on the preferred, were 166¼ per cent, amounting to $622,490,106, while the dividends on the common stock have amounted to 117¼ per cent, or $595,962,826. Aggregate dividends have amounted to $1,218,452,932. The surplus after dividends for the full period was $887,555,731. From this has been appropriated for capital expenditures and special charges, $395,494,423.

Dividends on the preferred stock have been paid regularly at the rate of 7 per cent a year since 1901. The dividend payment on common stock fluctuated since the first years of operation. There is now being paid 7 per cent annually on the common stock, including 2 per cent and the regular 5 per cent rate. The capital structure of the company has been reduced through the retirement of the preferred share. In 1901 there were $508,212,543 of common stock outstanding and $510,173,778 of preferred. There was also $362,841,683 of bonded and debenture debt. At the present time the common stock structure remains the same, but the preferred stock outstanding amounts to only $360,281,100. The bonded debt on the other hand has been increased to $511,272,929.

The Steel corporation did not tread a path strewn by roses in the early years of its life. It was born almost at the beginning of the era of big business. The most serious attack upon its corporate existence was made during the Taft administration, when a dissolution suit was brought at Trenton, New Jersey in 1911. The lower court decided in its favor in June 1920. A final disposition of the case came when the United States Supreme Court upheld the verdict of the lower court, the corporation was not a trust within the meaning of the Sherman law.

Large Uses of Steel In Small Ways

INCLUDED in the substantial amount of steel which American workmen carry around on their persons are overall trimmings, in the manufacture of which 2500 to 3150 tons of steel is consumed during a year. That quantity is purchased for the manufacture of the 50,000,000 to 60,000,000 suits of overalls produced in this country annually. Some of this product is shipped abroad but the bulk remains in this country.

Some overalls are equipped with slides by which the length of the suspenders is adjusted, and loops by which the suspenders may be buttoned to the bib. Others lack these slides and loops and simply are provided with buckles. Each suit is equipped with 8 to 11 metal buttons. These are attached to the garments by steel tacks. Between 1350 and 1700 tons of steel is consumed annually in producing the slides, loops and buckles. About 80 per cent of the buttons are made of steel and the requirements for these range between 650 and 850 tons yearly. The steel tacks account for an additional 500 to 600 tons of steel used in a year.

Overall Trimmings

THIS is the fifty-eighth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the great American tonnage.

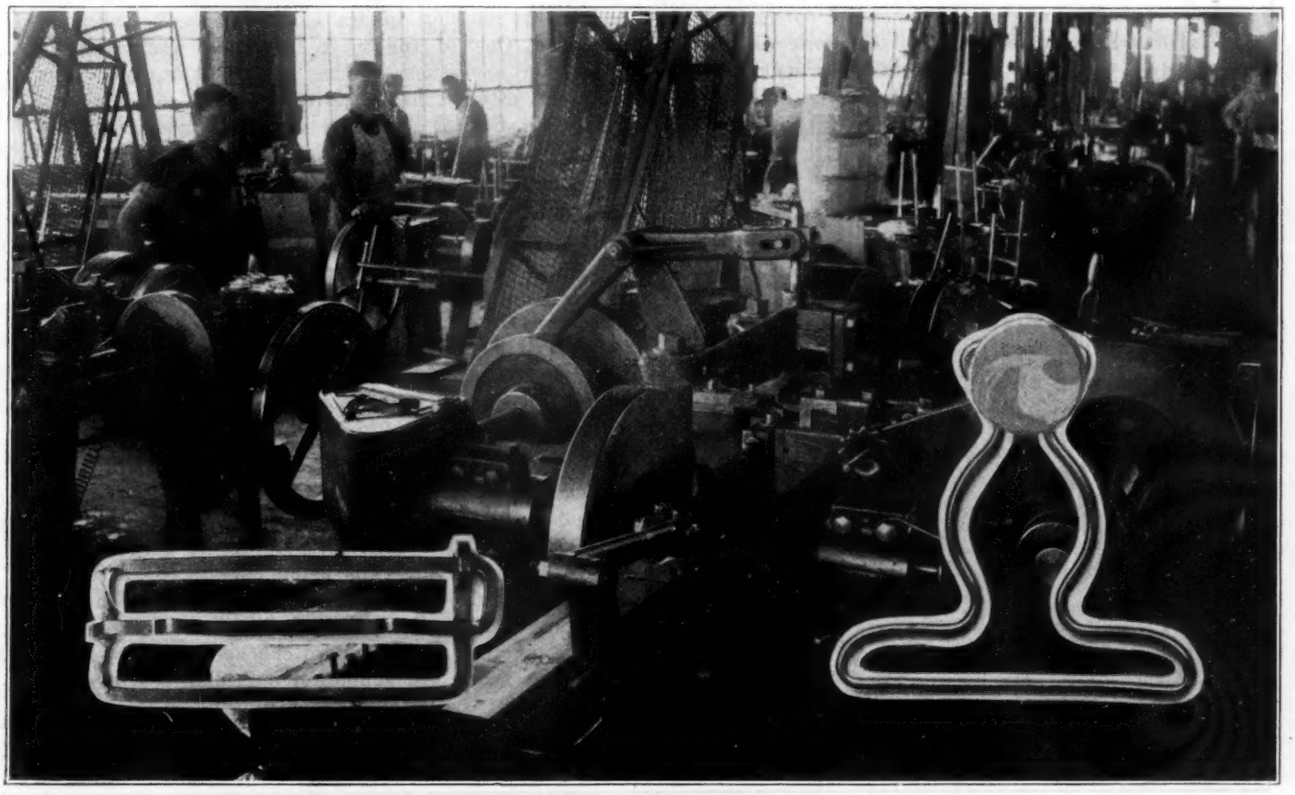
The first article on "corsets" appeared Nov. 22, 1923. Other articles appearing fortnightly since are:

Pins	*Razor Blades*
Cotton Ties	*Pens*
Toys	*Steel Wool*
Spinning Rings	*License Plates*
Card Clothing	*Hypodermic Needles*
Tie Plate	*Shoe Steel*
Tacks	*Crushed Steel*
Knives and Forks	*Skates*
Surgical Instruments	*Needles*
Fence Posts	*Phonograph Needles*
Eyeglass Cases	*Golf Clubs*
Fishing Tackle	*Mechanical Pencils*
Dental Drills	*Burial Caskets*
Pocket Knives	*Telephones*
Rat Guards	*Radio Towers*
Snap Fasteners	*Brushes*
Paper Clips	*Electric Bells*
Steel Vests	*Bookbinder Wire*
Electrical Conduit	*Sucker Rods*
Radiator Furniture	*Watch Hands*
Notebooks	*Steel Furniture*
Metal Beds	*Highway Markers*
Bolts and Nuts	*Camp Cots*
Metal Lath	*Flexible Shaft*
Tin Cans	*Wood Pipe*
Umbrellas	*Buttons*
Steel Barrels	*Sheet Metal Screws*
Washers	*Rivets*

The slides are made from 14 or 15-gage, square, copper-plated, soft steel wire. The loops are of 14-gage, or 0.075-inch, basic, round wire. The buckles are made of 13 to 16-gage, copper-plated, round wire. The buttons are produced from 0.01 to 0.025-inch strip steel, while the cheaper buttons are made out of tin plate.

Wire for the production of the slides is bought in coils which are mounted on reels and fed into a 4-slide wire forming machine equipped with special dies for this work. As the wire is fed into the machine, it is first straightened, then cut off, after which there are eight bending operations to form the slide. There are 11 operations including dropping the finished slide out of the machine. Each of these machines produces 80 slides per minute and one operator takes care of five machines simultaneously.

From the wire forming machines the finished slides drop into pans. As the pans become filled their contents are dumped into chutes which feed into



storage bins. From the latter, as required, the slides are taken to the tumbling department and tumbled in leather meal, which is merely the technical name for leather grindings obtained from shoe factories. This leather meal is sufficiently sharp to give a high finish to the slides and similar light wire products. The tumbling is done in barrels of the oblique tilting type.

Next, the slides are taken to the plating department. Here they are passed through a potash solution, then through a pickling solution after which they are rinsed in water. They then are placed in mechanical plating barrels, where they are given a coat of brass or nickel. The next step is rinsing in water, after which the slides are passed through a mechanical dryer. They then go back to the tumbling department where they are tumbled in sawdust which brightens the surface. Next the slides go to the packing department where they are inspected, and, by means of counting scales, packed in double gross packages for shipment.

Wire for making the loops also is purchased in coils which are mounted for feeding into a four-slide automatic wire forming machine of the same type as used for manufacturing the slide. The wire is straightened, cut and knocked out from the machine. In this machine there are eight operations. Next the loops are fed by hand into a semiautomatic dial press. Into this press is fed 0.020-inch cold-rolled strip steel, ⅝-inch wide, which is stamped by a gang die to form a saddle. From the gang die these saddles are conveyed into the dial of the press. The operator feeds the wire loops into the saddles, the two pieces being locked together by a toll in the press. Removal of the loops is affected by means of a mechanical knock-out.

Textile Industry Is Big User of Steel

(*Concluded from Page* 507)

and transportation devices of various kinds, air compressors and blowers, ventilating systems, shafting, electric motors, and steel containers, an approximate steel tonnage per spindle was obtained by taking the figures in a typical going plant. Auxiliary equipment was listed with weight carefully estimated. The total divided by the number of spindles gave a figure of 14 pounds per spindle. This would probably be the same in the South as in New England, but it should be corrected to account for the machine tools purchased in New England for the southern plants. The report of one New England tool manufacturer gives the basis for the estimate that 2 pounds per spindle of the auxiliary equipment in southern plants is purchased in New England. This leaves 12 pounds per spindle per year to be added to New England's loss in steel consumption, or a total of 240 tons, giving a total of 1140 tons as the direct annual loss in steel consumption in New England due to the development of the cotton textile industry in the South.

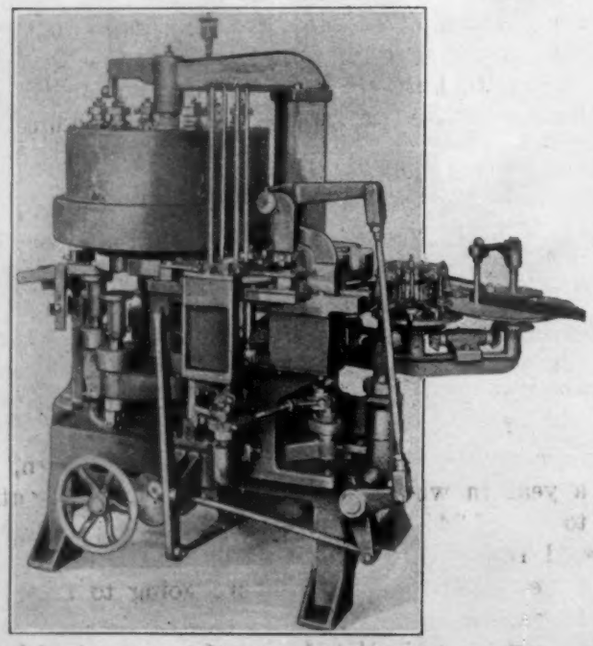
In the woolen industry and also in the manufacture of silk and rayon, the development in the South has been negligible so that in these branches of the extile industry New England certainly has not lost any of its steel consumption to the southern states, and it is doubtful whether any other districts could be held responsible for any loss.

As a matter of fact, New England, according to a recent report of the Boston chamber of commerce, manufactures practically 70 per cent in point of value of the nation's wool fabric production.

The accompanying charts give a vivid idea of the growing importance of the southern district in the textile industry.

New Machine Closes Packed Cans Speedily

PURCHASING of all varieties of food products in metal containers has become so general that little thought is given to the work which is involved in preparing the goods for the market. Handling of the foodstuffs comprises one interesting story, while the making of tin cans and their sealing is another. One of the most important and most interesting operations is that of mechanically closing the can after it has received its food contents, and for this purpose a number of unique machines have been developed.



One of the latest machines of this type was given its first public demonstration at the Canning Machinery and Supplies association exhibit held at Louisville, Ky., during the last week in January in connection with the convention of the National Canners' association. This machine, manufactured by the Max Ams Machine Co., New York, and shown in the accompanying illustration and known as the high speed multispindle sanitary can closer, was developed early in 1925 but during the greater part of the year was undergoing tests.

The machine double seams the cans while the cans stand still and has a rated capacity of 160 cans per minute. This output varies, however, according to the contents of the cans being closed. The revolving turret has six seaming stations equipped with first and second operation rollers set in standard seaming rings, together with standard chucks and safety rings. Seaming heads are supported on roller bearings and make about six revolutions while the rollers are in actual contact with the can.

Editorials

Steel Corporation, Successful Pioneer

THE first quarter century of the existence of the United States Steel Corp. has spanned a period of amazing industrial developments. In the unfolding of a new era of big organizations, characterized by accelerated production methods by the great expansion of transportation facilities and by a marked uplift in the moral tone of business, the Corporation has played an important part. Steel is the universal metal of this extraordinary age. The Corporation has been the largest single producer and seller of the basic material upon which the framework of modern civilization rests.

Because of its size the Corporation early was projected into a central position of public attention and interest. It was within its power to wield vast influence for good or otherwise in industry. By the unimpeachable testimony of the United States Supreme Court, in assuring the continuance of its entity, the Corporation chose to avoid the devious paths of questionable business practices. In taking a stand for fair dealing, for a policy of live and let live, for conservatism, and full publicity of all its important affairs, it was actuated by a vision entertained by its leaders which penetrated far into the future of the country.

Since the Corporation is in business to make money it deliberately adopted a course designed to be profitable and to insure its perpetuity. This is a policy of enlightened self-interest. It is distinguished from blind self-interest which jeopardizes the larger end for the profit gain of the moment. At the beginning of the present century big business was under deep suspicion and a certain odium, not a little of which was justified. The principle of the "public be dammed" still survived. The Steel corporation has helped to blaze a new trail of open dealing, and of more ethical methods. By proving that these policies are profitable it has set a telling example.

Although the age has been one of swift growth the Corporation has indulged in no orgy of expansion of productive facilities. By this means it has mended a vulnerable point in its set-up which existed at the beginning. It no longer overbalances the remainder of the steel industry.

The record of the Steel corporation for the past 25 years is one of unique and momentous achievement against great obstacles. However, its greatest contribution to the cause of general business has been its steady-going conservatism and level headedness in a period crammed with modifying events which have promoted the general appreciation of sound thinking and hence of common stability.

Will Halt Business Badgering

SENATE Republicans have been stirred into the mood to put a stop to what has been described as the preliminaries for an orgy of investigations in the next month against business. The start has been made to join forces to prevent wasting of time and using the senate chamber and committee rooms as a forum for the congressional campaign.

Few things could be worse than purely demagogic attacks on business. In acting to investigate proposed food products mergers, the government, through the department of justice, has checked the activities of some administration critics who held the implication that the party in power was ready to give support and favor to any and all giant consolidations amounting to monopolies.

The administration apparently effectively has taken the position that combinations that may be detrimental to the public interest are not to be permitted, and that competition is to be maintained when such is beneficial. This, however, does not mean that the administration is opposed to all sorts of combinations of business interests. Big business, when the right kind of competition is maintained, in the last analysis spells economic freedom for all. Mass consumption is the concomitant of mass production. The legitimate business activities are not to be molested, senate campaigners notwithstanding.

Ore Beneficiation Increases

NEARLY one-third of all the iron ore shipped from the Lake Superior district in 1925 went through some treatment to make it suitable for the market. This fact is the most significant feature of the official record of mine shipments as printed beginning on page 549 of this issue of IRON TRADE REVIEW. The percentage of treated ore is unusually high, for a year in which the total shipments, amounting to 55,516,344 tons, were about normal. The record reveals the surprising increase in the tonnage of beneficiated iron ore going to the blast furnaces.

Last year 15,917,031 tons of ore required bene-

ficiation. The amount crushed and screened was 9,244,087 tons; washed, 6,177,417 tons; dried, 258,680 tons; sintered and nodulized 123,209 tons; and that treated in jigs, 113,638 tons. The total amount from Minnesota was 13,600,000 tons. That is 50 per cent more than in 1923, when all iron ore shipments were about 10 per cent larger than in 1925. In 1915 the total amount of ore treated in Minnesota was 3,030,000 tons.

These figures represent the amounts shipped, not the weight of the material that went through mechanically equipped plants. They indicate the trend of development in the Lake Superior district, and that it will not be long before most of the ore will be beneficiated before being shipped. This will not detract from the quality of the product, but inevitably it will raise the cost of production.

1926 Building Outlook Favorable

SELLERS of structural and reinforcing steel and other fabricated steel forms for building construction are experiencing a backward market in an usually active season. IRON TRADE REVIEW weekly tabulation of structural steel awards reveals that 1926 is 120,000 tons behind 1925 in contracts placed to similar dates. General building volume continues at the record-breaking height attained in 1925. Reports from 25 leading cities during January show a gain of 9 per cent over the same month of last year in the value of building permits granted. Architects' boards are well supplied with plans for spring programs and estimating departments of structural fabricators are finding no dearth of prospective business. These factors indicate that the present lull in building steel activity may be short lived and increased buying reflected in demand for other products.

Scrapping Reduces Shipping Loss

REPORTS are current that Chairman O'Connor of the shipping board is seeking to place on the market 200 more of the obsolete vessels of the Fleet corporation to be used as scrap, similar to the sale some months ago of 200 vessels to Henry Ford for scrapping purposes.

If Mr. O'Connor can convince the other shipping board commissioners that such a course would be wise, the attempt will be well worth while.

As a phantom in the background of the ship building industry are the laid-up ships of the Fleet corporation, which represent a gigantic national loss in care and upkeep, and still remain a competitive menace to further activity in shipbuilding plans. Further scrapping of vessels will be opposed in congress, as was the Ford sale. Already talk has developed of a congressional investigation of the Ford purchase.

Many in congress fail to understand the problem. Because the sale of these vessels for scrap does not begin to approach their original cost to the taxpayers, some congressmen believe scrapping represents tremendous and needless waste. The acetylene torch was applied to the steel on two unfinished battleships on the ways a year or more ago, when destruction was ordered under the terms of the limitation of arms treaties. It would be less waste to the government to dispose of these obsolete ships of the Fleet corporation for scrap than the dismantling of army cantonments has been. Such things must be charged to the war. It is time to further reduce the tremendous shipping board losses.

What Our Readers Are Thinking

How Labor Can Improve Its Position

IT IS too soon to speak with confidence of the part played by joint conference committees in solving industrial problems, whether it is a pronounced success or a total failure, will depend upon the manner in which it is handled. Enough evidence is at hand to show that a great deal of value, both to the employer and employe, has come from the establishment of a relationship co-operative in its character and educational to both parties at interest.

This relationship having been established, labor can play a large and important part, of tremendous value to itself and the consuming public, of which it forms so large a part, if it will adopt a broader attitude than it has heretofore assumed, and concern itself not only with those things which will further its own narrow interests, but also and principally with those which are of the most benefit to all connected with the industry, in the development of which labor should be an important and constantly increasing factor.

I maintain that the limit has been passed when enthusiastic reformers advocate giving a voice in the financial and business management to the workman, who is not responsible for bringing the industry into existence, and has no responsibility for the operating results, whether profitable or unprofitable. While many managers have come from the ranks and there is no limit to the possibilities of advancement for the workman, a responsible management is heeded to provide for the development and even existence of the industry, a result on which depends not only the interests of the many owners and the public served, but the employment or nonemployment of the wage earners themselves.

The fallacies of socialism might easily destroy the entire structure, the condition of Russian industry today being an evidence of their effect.—E. N. HERR, *president, Westinghouse Electric & Mfg. Co. in address delivered before the Yale Divinity school and New Haven Industrial Relations council.*

The Readers' Page

Vol. LXXVIII, No. 8 IRON TRADE REVIEW Feb. 25, 1926

Iron Ore Service More Than 25 Years Old

NEARLY 10,000 groups of figures appear on the large chart issued annually at this time by IRON TRADE REVIEW, as a record of shipments of iron ore from the Lake Superior district. On the chart are the names of approximately 400 mines, and their individual shipping records. The chart represents a service that IRON TRADE REVIEW began more than a quarter of a century ago and has carried forward each year. During the greater part of the period covered by the chart no other agency has attempted to compile the complete data; it is the original source of much of the information now issued. Weeks of work have been required each year to obtain, compile and compare mine, railroad, dock and vessel reports to obtain accurate figures. The record has been published first annually in IRON TRADE REVIEW, and then has been incorporated in the large ore chart.

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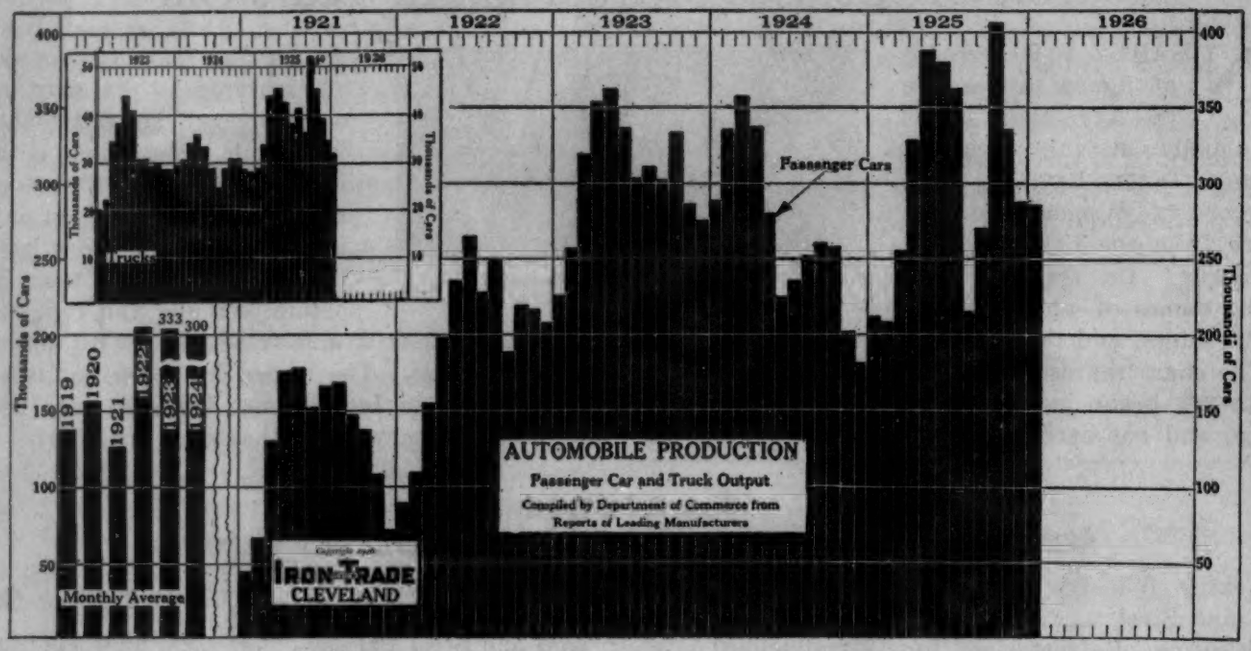
The Business Trend



Automobile Output Ahead of Sales

By JOHN W. HILL, Financial Editor

THE automobile situation remains one of the most interesting and enigmatical phases of the immediate outlook. The motor car industry has grown to such vast size and it has interwoven itself so inextricably into the fabric of modern life, that its swells and lulls are of more than ordinary significance.

JUST now there are reasons to believe that the production of cars is running well ahead of consumption. Manufacturers are not holding so closely to their policy of keeping outputs in step with retail sales. This is true because of strong confidence of the industry in a great spring demand.

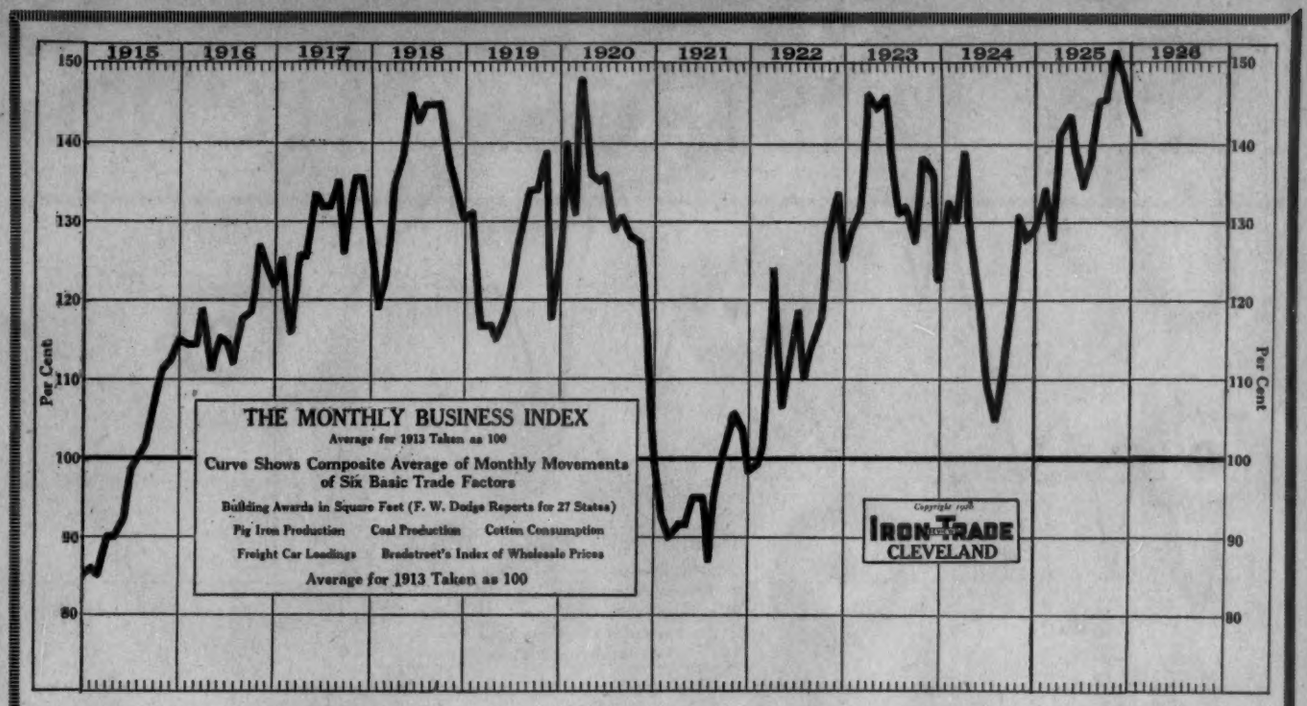
ONE estimate has it that fully 30 per cent of production during January remained unsold and that stocks of unsold cars increased 20 per cent during the month. Whether or not this is a sound situation will only be known as the season develops more definitely. For the present there is a tendency to step up production rather than to hold it in check pending definite assurance of big spring demand.

JANUARY output of cars and trucks as estimated by the department of commerce was 315,000. This was a decline of about 1 per cent from the unusually high December total. It was a gain of 30 per cent over the total for January, 1925. Compared with January, 1924, however, when 334,000 cars and trucks were made, there is a loss.

THAT over production danger exists in the industry is seen in the fact that the aggregate capacity is sufficient to turn out over 6,000,000 cars annually. Heads of most important companies have been quoted as saying that production in 1926 will be about the same as in 1925. At the same time each one has predicted a great gain in his own output.

SOME encouraging light upon the moot question of saturation in the industry has been shed by a statistical study by Col. L. P. Ayres of the Cleveland Trust Co. This computation shows that, taking the United States as a whole, no symptoms of an approaching saturation point for passenger automobiles have as yet appeared.

The Business Trend

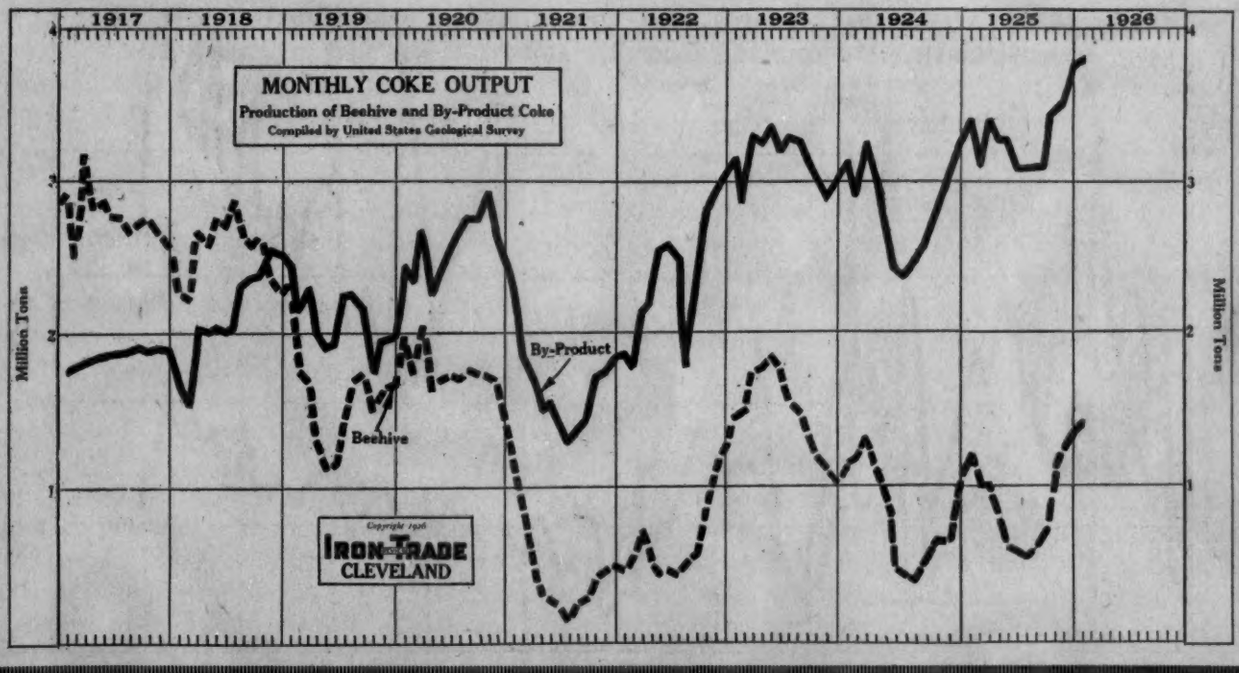


Business Index

JANUARY brought some seasonal recession for the monthly business index computed by IRON TRADE REVIEW. The figure for the month stood at 141.3. Compared with 145.3 in December. The level of business, however, stands well above that of one year ago. The number stood at 131.3 in January, 1925. Last month there were gains for pig iron output, for coal production and cotton consumption. Declines for traffic, prices and building were reported during the month.

Coke Production

UNDER the stimulation of the hard coal strike, coke production made a new high in January. By-product coke during the month amounted to 3,804,000 net tons, an increase of 44,000 tons, or 1.1 per cent compared with the preceding month. Beehive coke production also continued to increase during January. The total being estimated at 1,381,000 tons, an increase of 74,000 tons, or 5.7 per cent compared with December. By-production coke output in January was 73 per cent of the total coke output.



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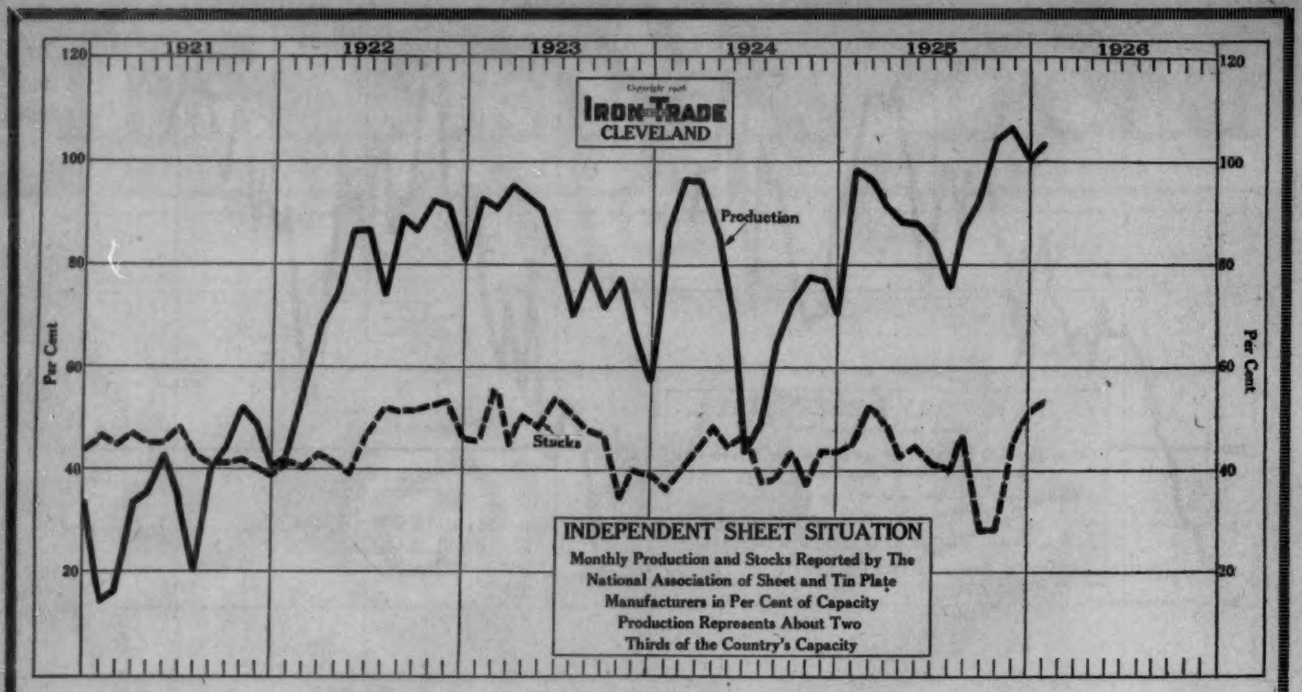
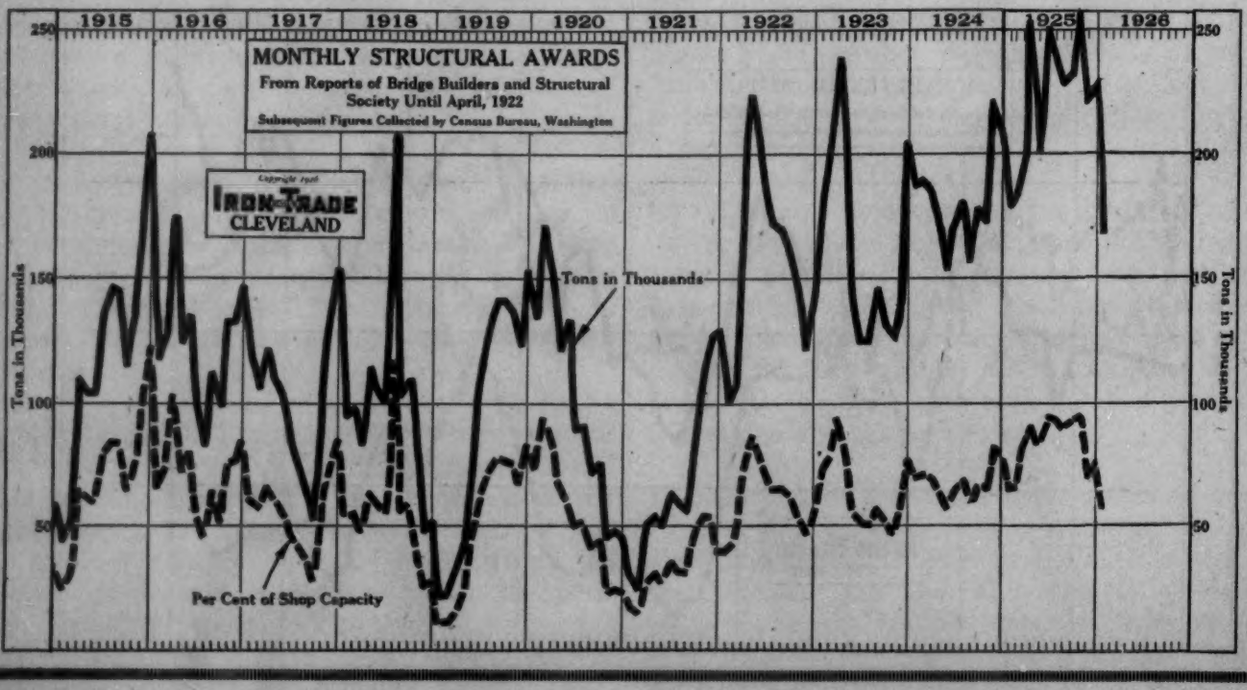


Independent Sheets

IMPROVEMENT in production and shipment of sheets in January compared with December is reported by the National Association of Sheet and Tin Plate Manufacturers. There were, however, sharp declines in sales for the month and in unfilled tonnage. Production in January was 104.4 per cent of capacity compared with 100.7 per cent in December. Sales declined from 101.8 per cent of capacity in December to 80.4 in January. Stocks increased during last month.

Structural Awards

THE influence of seasonal declines for building construction is reflected in the record of structural steel awards of January. The computed tonnage of bookings was 179,953 tons. This was a decline of 21 per cent from the December tonnage of 228,750 tons. It was slightly greater than the record of January, 1925, when awards amounted to 173,850 tons, a decline of 24 per cent under the preceding December. Bookings were 59 per cent of capacity in January compared with 75 in December.



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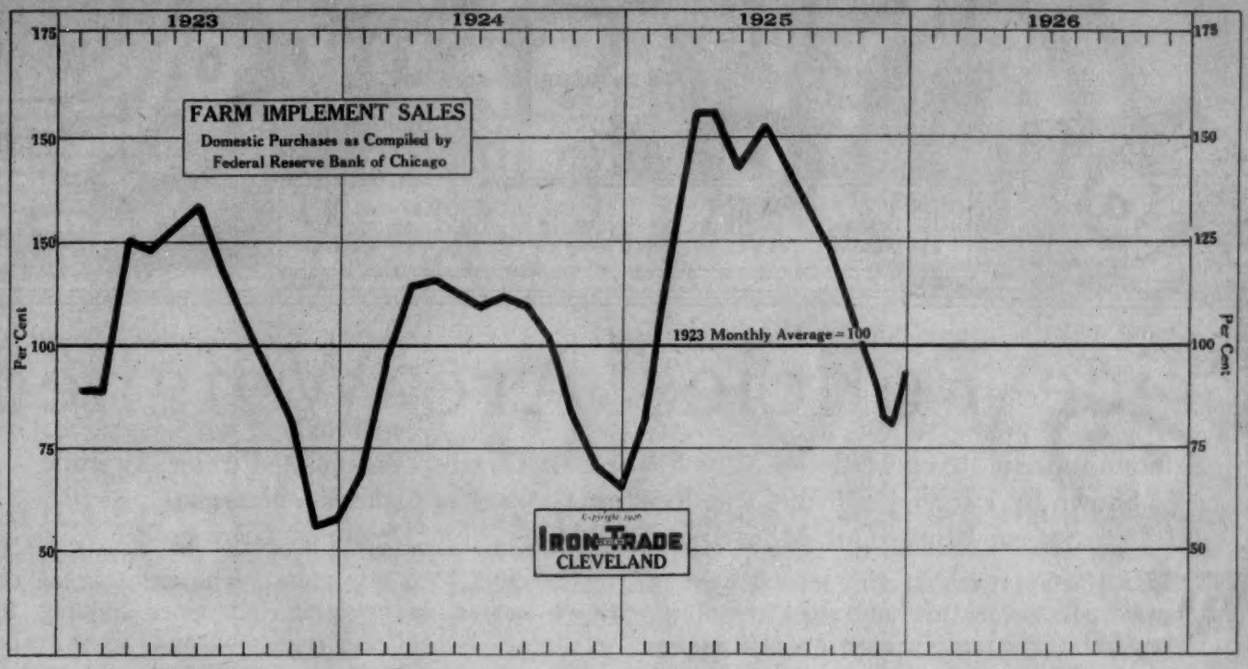


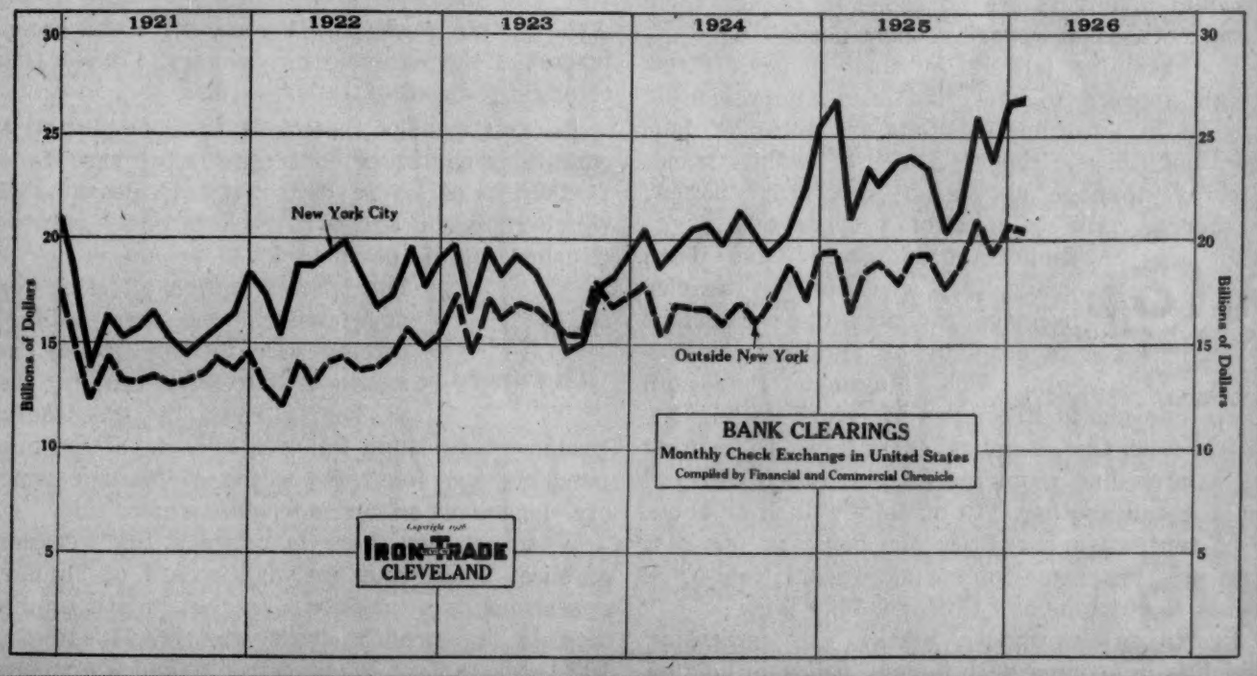
Farm Implements

THE sales of agricultural machine and equipment as computed by the Federal Reserve bank of Chicago have been holding at the highest level of recent years. This shows that domestic sales of farm tools The latest figure available is that for December for 1925. This shows that domestic sales of farm tools amounted to 93 per cent of the 1923 average. That compares with 83 per cent in November with 65.3 per cent in December, 1924, and with 58.7 per cent in December, 1923.

Bank Clearings

ALTHOUGH check exchanges in January fell below the December total because of seasonal reasons the month's record was highest for any other January ever reported.

The total for the month of $47,634,000,000 was 1 per cent under December and 3.2 per cent over January, 1925. New York clearings of $27,101,000,000 was 3 per cent under the December total and 1.4 over January, 1925. Outside of New York clearings dropped 2.5 per cent under December, but show a gain of 5.6 per cent over one year ago.



Price Policies Are Weighed

Announcements Being Made by Mills for Second Quarter Business—Firmer Attitude Shown by Larger Producers and Reaffirmations Are General—Nearing Open Season Brings Out More Inquiry—Automotive Demands Growing

WITH the approach of the second quarter, price policies in iron and steel are receiving greater attention and the attitudes of producers on this score have figured more prominently in the week's market news. A disposition on the part of the higher producers to hold the situation firmly and in fact to reaffirm price schedules from which there has been considerable deviation recently, is becoming plainer.

In sheets, the larger mills have re-established prices for second quarter on the same basis as for first quarter with the exception of recognizing the $2 per ton reduction in automobile sheets. Strip steel, likewise has been reaffirmed for second quarter. The more influential interests seem to be stiffening in plates, shapes and bars.

With announcements of forward prices in process and probabilities of advances generally discounted, buyers see no cause to change their close methods of covering their needs. The situation remains largely in their hands. Pittsburgh appears to feel that some improvement has set in, since specifications are ahead of January but Chicago reports a lack of definite trend. Broadly, tonnage shows no important change; neither do mill or steelworks operations.

Pipe Tonnage Heavy

Important additions have been made this week to the heavier tonnage for pipe line extensions required by oil and gas companies. The Magnolia Petroleum Corp. has placed 271 miles of 8-inch calling for 18,970 tons. One Standard Oil interest is framing up a large line requiring 40,000 tons of 10 and 20-inch and another, 110 miles of 8-inch or about 9000 tons. Municipalities are bringing out cast iron pipe programs for spring work. New York wants 10,000 tons and Chicago, 5600 tons.

Drafts on warehouse stocks are increasing which is in keeping with buyers' policy in holding inventories to a minimum. The sighting of the open season is bringing out more inquiry for structural steel, cast iron pipe and some other lines. Automotive interests are taking more tonnage as their operations expand. The lower priced car builders, with one exception, are making a quick comeback in production.

Car Inquiry Heavier

A good report in railroad equipment activity is a very welcome development for the mills. New inquiry is notable along with 2000 cars additional for the Union Pacific, 1000 additional for the Northern Pacific, 500 each for the Santa Fe and Burlington and 350 for the Pere Marquette. New orders exceed 4000 including 3400 for the Seabord Air Line.

The spring building program is getting underway and inquiries are coming out more freely. Awards this week 33,771 tons, were the second largest of the year and for January, 179,950 tons, or slightly ahead of January 1925.

Readjustment of the coke market to post-strike conditions continues. Furnace coke has fallen further to $4, ovens with distress sales at $3.50 which represent losses to brokers of $7 per ton. Crushed coke is down to $5.

Mill Wages Discussed

The labor situation affecting tonnage men in the sheet mills is forcing recognition. Recent advances of 4 to 8 per cent for men on hourly rates by the leading producer now being followed by some of the independents, has left the position of tonnage workers, dependent on current prices, out of line.

What relation there is between the weakness of sheet prices and the high record of January operations, is a question. In that month production by independent mills was 328,643 tons or 104.4 per cent of rated capacity and shipments,

333,485 tons or 105.9 per cent, the latter being the highest on record.

Pig iron buyers remain coy in providing for second quarter requirements at quoted prices and the undertone of the situation is less firm. It is not unlikely that spot buying may be the order of the market for a while, the same as in steel. Of this week's sales, the St. Louis district with 40,000 tons, most of which was basic, is outstanding.

IRON TRADE REVIEW composite of fourteen leading iron and steel products continues on the same basis this week as last or $38.90. This is the low point of the year to date.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Feb. 24, 1926	Jan. 1926	Nov. 1925	Feb. 1925
PIG IRON				
Bessemer, valley, del., Pittsburgh	$22.76	22.76	22.61	24.61
Basic, valley	20.00	20.00	19.85	22.00
Basic eastern del., eastern Pa.	22.50	22.75	22.70	24.25
*No. 2 foundry, del., Pittsburgh	22.26	22.26	22.11	23.76
No. 2 foundry, Chicago	23.00	23.00	22.75	24.00
*Southern, No. 2, Birmingham	22.00	22.75	21.00	20.75
*Southern Ohio, No. 2 Ironton	21.00	21.40	21.00	22.00
**No. 2X, Virginia furnace	23.00	23.50	23.00	24.50
**No. 2X, eastern, del. Phila.	24.01	24.26	24.01	25.26
Malleable, valley	20.50	20.50	20.35	22.00
Malleable, Chicago	23.00	23.00	22.75	24.00
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	21.76	21.76	21.61	23.26
Ferromanganese, del., Pittsburgh	119.79	119.79	119.79	119.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	3.75	6.90	6.35	3.65
Connellsville, foundry, ovens	5.00	6.40	6.85	4.30
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	36.50	35.25	39.00
Sheet bars, open-hearth, Pittsburgh	36.00	36.50	35.25	39.00
Billets, open-hearth, Pittsburgh	35.00	35.50	35.00	37.60
Wire rods, Pittsburgh	45.00	45.00	45.50	48.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	2.00	2.00	2.15
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, Philadelphia	2.32	2.32	2.32	2.37
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago, mill	2.00	2.00	2.00	2.00
Beams, Pittsburgh	1.90	1.90	1.85	2.10
Beams, Philadelphia	2.17	2.17	2.17	2.32
Beams, Chicago	2.10	2.10	2.10	2.30
Tank plates, Pittsburgh	1.85	1.90	1.85	2.10
Tank plates, Philadelphia	2.12	2.12	1.92	2.32
Tank plates, Chicago	2.10	2.10	2.10	2.30
Sheets, black, No. 28, Pittsburgh	3.25	3.35	3.25	3.50
Sheets, blue anl., No. 10, Pittsburgh	2.50	2.50	2.40	2.75
Sheets, galvanized, No. 28, Pittsburgh	4.60	4.60	4.50	4.80
Sheets, black, No. 28, Chicago	3.50	3.50	3.45	3.85
Sheets, blue anl. No. 10, Chicago	2.65	2.65	2.60	2.95
Sheets, galvanized, No. 28, Chicago	4.75	4.75	4.70	5.00
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago	2.70	2.70	2.70	3.05
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	17.50	18.75	19.50	19.00
Heavy melting steel, eastern Pa.	16.25	17.35	17.60	17.85
Heavy melting steel, Chicago	14.00	14.95	16.40	17.55
No. 1 wrought, eastern Pa.	18.00	18.35	18.75	20.50
No. 1 wrought, Chicago	14.25	15.00	17.70	17.75
Rails for rolling, Chicago	16.25	17.55	19.40	19.15

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Feb. 24, 1926)	$38.90
Last week (Feb. 17, 1926)	38.90
One month ago (January, 1926)	39.17
Three months ago (November, 1925)	38.73
One year ago (February, 1925)	41.13
Ten years ago (February, 1916)	25.63
Thirteen years ago (February, 1913)	28.05

Late News Flashes

Chicago Keeps Its Gait

Chicago, Feb. 23—Steel ingot operations in this district are holding at 89 per cent, with no indications of an immediate change. Of the 35 steel works blast furnaces 27 continue active.

Anthracite Mines Buying Heavily

Philadelphia, Feb. 23.—Anthracite mine operators continue to specify actively all kinds of steel products including sheets, wire rope, bars, plates, shapes, etc. Several new light rail inquiries have just been brought out.

German Pipemaker Gets Centrifugal License

New York, Feb. 23.—Gelsenkirchener Bergwerks, Germany, is reported to have arranged for manufacture of its pipe under De Lavaud patents owned by the Centrifugal Pipe Corp. The United States Cast Iron Pipe & Foundry Co. possesses the right to manufacture pipe under these patents in America.

Large Locomotive Inquiry Out

New York, Feb. 23.—Inquiry just issued by the Southern railway for 113 locomotives is the largest item to come before locomotive builders in many months. Pennsylvania railroad is to build eight locomotives, with the electrical equipment furnished by the Westinghouse Electric & Mfg. Co. Northern Pacific has awarded ten observation cars to Pullman Car & Mfg. Corp.

January Shape Bookings Above 1925

Washington, Feb. 23.—Computed fabricated structural shape bookings in January were 179,950 tons, compared with 228,750 tons in December and 173,850 tons in January 1925, according to reports to the department of commerce from 179 companies with 264,545 tons monthly capacity. Shipments in January were 210,450 tons compared with 240,950 tons in December and 176,900 tons in January 1925.

Motor Companies Release Tonnage

Detroit, Feb. 23.—Motor car builders, especially those of the lower-priced type, are making a quick recovery of production and are releasing large tonnages of steel to the mills for delivery within the next 30 to 60 days. These specifications cover sheets, strip, bars and other finished forms. The companies most active are Chevrolet, Hudson, Essex, Willys-Overland, Buick and other companies. Chevrolet is preparing for the largest month's output in history starting with 2,565 cars daily. Buick will produce 27,122 cars in March.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Philadelphia	40.30 to 41.30
Chicago	35.00
Forging, Pittsburgh	41.00
Forging, Philadelphia	45.30 to 46.30

SHEET BARS

Pittsburgh	36.00
Youngstown	36.00

SLABS

Pittsburgh	35.00
Youngstown	35.00

WIRE RODS

¼-inch and finer

Pittsburgh	$45.00
Cleveland	45.00
Chicago	46.00

Standard extras, $2.50 per ton over ⅝-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.85c to 1.90c
Universal skelp, Pittsburgh	1.85c to 1.90c
Sheared skelp, Pittsburgh	1.85c to 1.90c

Structural Shapes

Pittsburgh	1.90c
Philadelphia	1.96c to 2.32c
New York	2.14c to 2.34c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.80c to 1.90c
Philadelphia	2.12c
New York	2.14c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	1.95c to 2.05c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c
Pittsburgh, cold finishing	2.15c
Pittsburgh, forging quality	2.15c
Philadelphia, soft steel	2.32c
New York, soft steel	2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.19c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c
Mill rail steel	1.85c to 1.95c
Philadelphia, common iron	2.22c
New York, common iron	2.24c
Chicago, common iron	2.00c

Hoops, Bands Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c to 2.50c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.90c
Worcester, Mass., Chicago	4.05c to 4.15c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled Pittsburgh.

Chicago carloads	2.50c
Less carload	2.75c

Steel shafting turned and polished Pittsburgh, Chicago 2.60c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—

2300 (3½ per cent nickel)	4.60c
3100 (Nickel chromium)	3.60c
6100 (Chrome vanadium)	4.40c
6100 (Chrome vanad. spring)	3.35c
9250 (Silico-mang. spring)	3.25c to 3.40c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	45.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45 mill g.t.	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts	3.00c to 3.10c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Tie plates, Pittsburgh	2.35c
Tie plates, Chicago	2.25c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base

Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c

Coated nails, 100 pound kegs, subject to card of extras Feb. 1, 1926 over regular wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts. $20.08

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28. Pittsburgh, base	3.25c to 3.35c
No. 28. Philadelphia, delivered	3.57c to 3.67c
No. 28. Gary, Indiana Harbor	3.45c
No. 28. Chicago delivered	3.50c

TIN MILL, BLACK

No. 28. Pittsburgh	3.25c to 3.35c
No. 28. Gary base	3.45c

GALVANIZED

No. 28. Pittsburgh, base	4.50c to 4.60c
No. 28. Philadelphia, delivered	4.92c
No. 28. Gary, Indiana Harbor	4.70c
No. 28. Chicago, delivered	4.75c

BLUE ANNEALED

No. 10. Pittsburgh, base	2.45c to 2.50c
No. 10. Philadelphia, delivered	2.82c
No. 10. Gary, Indiana Harbor	2.60c
No. 10. Chicago, delivered	2.65c

AUTOMOBILE SHEETS

No. 22. Pittsburgh, base	4.40c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, base	4.85

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3¼ to 3½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.30c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$53.20 to 54.20
Six-inch and over, Chicago	49.20 to 50.20
Four-inch, Birmingham	45.00
Six-inch and over, Birmingham	41.00 to 42.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60

Standard fittings, Birmingham base $110.00, 6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank	$4.00 off list
Hot pressed hexagon tapped or blank	$4.40 off list
Cold punched square or hexagon blank	$4.10 off list
Cold punched square or hexagon tapped or blank	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

CARRIAGE BOLTS

(⅜ x 6-inch, smaller and shorter)

Rolled thread	60, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4-inch, hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
Tap bolts	30 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off
Stove bolts, 80, 10 and 5 off plus 2½ off in bulk.	
Tire bolts	60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.50c to 2.60c
Structural rivets, carloads, Chicago	2.75c
**Rivets, 7/16-inch and smaller Pittsburgh Cleveland	70 and 10 to 70 and 5 off
**Rivets, 7/16 inch and smaller Chicago	70 and 10 to 70 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.30 to 6.40 off
Wrought c.l., Pitts. dist	6.25 off
Lock Washers, f.o.b. factory	85 off

Pig Iron

Melters Waiting for Lower Prices—Weaker Position of Furnaces Indicated—More Spot Buying Is Noted

ORDERS for pig iron for the second quarter have been slower in developing since the settlement of the coal strike, the effect of it having led buyers to wait. While shipments from furnaces continue heavy, melters generally are looking for lower prices for the next quarter. Many inquiries that have been issued have been withdrawn when furnace interests quoted the present prevailing levels; at the same time some of them are in need of more tonnage. Certain pig iron sellers in the Chicago district believe the alternative to a price reduction at this time is hand-to-mouth buying through the second quarter. The largest amount booked during the week is reported at St. Louis. Of 40,000 tons closed, three-fourths of the amount represented basic iron.

PITTSBURGH, Feb. 23.—Practically no change has occured in the pig iron market for the past past three or four weeks. Foundry, malleable and bessemer buyers still are taking piecemeal lots and prices are unchanged. No basic inquiries or sales are noted. Deliveries were started last October against 10,000 tons of basic sold by a scrap interest, which was reported as a recent transaction by another paper. The market possesses several elements of strength, first the possibility of a price advance; second, most in middle hands has been cleaned up; and third, furnace yard stocks are shrinking, since shipments exceed output in some cases by 50 per cent. There is no inclination on the part of merchant producers to sacrifice prices and sell at a loss. All customers are specifying freely. Furnaces recently banked or blown out show no hurry about resuming. The Struthers Furnace Co.'s stack resumed on Feb. 15 after engaging in coke sales for about one week.

Boston, Feb. 23.—A waiting policy continues in the New England pig iron market. Sales during the week have been almost entirely in small lots for current consumption. Inquiry includes two or three lots ranging from 500 to 1000 tons for second quarter delivery. In the absence of important tests prices are about the same as a week ago. Considerable foreign iron continues to reach Boston. Receipts in February to date total 9000 tons, mainly from Holland.

New York, Feb. 23.—A fair spot business features the pig iron market here, but consumers generally continue to postpone action on future requirements. The standard Gas Equipment Corp. has decided not to buy second quarter iron for its Baltimore plant at this time. The Worthington Pump & Machinery Corp. has not taken action on substantially 1500 tons for Harrison and Holyoke. The Gilbert & Barker Mfg. Co., Springfield, Mass., which put an inquiry has decided not to buy now. The General Electric Co. has placed 650 tons of malleable for Erie. The E. & T. Fairbanks Co., St. Johnsbury, Vt., has inquired for 1000 tons for second quarter. Prices are unchanged, the market ranging from $21 to $22, base Buffalo, and $22.50 to $23, base eastern Pennsylvania furnaces. A new factor in the market is the Hudson Valley Coke & Products Corp., which is to blow in its rebuilt furnace at Troy, N. Y., in the middle of March. Foreign iron is bringing $20.50 to $23, base duty paid tidewater, depending on the grade. Prices under $21 are exceptional. New sales of foreign iron include 1000 tons of English low phosphorus.

The Central Foundry Co., New York, and the Essex Foundry, Newark, N. J., are inquiring for pig iron for second quarter.

Philadelphia, Feb. 23.—Pig iron buying here is scattered in prompt lots, and the total is small. Eastern furnaces, however, are figuring on at least a dozen inquiries from New England and New York for second quarter, so the market is expected to be more clearly defined shortly. Eastern Pennsylvania foundry iron is $22.50 to $23, base furnace. Most makers desire more tonnage. Considerable foreign foundry iron is available at $20.50 to $22 duty paid tidewater. A steel mill inquired for basic but postponed buying. Several steelmakers are expected to buy basic in March for second quarter. Several hundred tons of low phosphorus iron was sold at unchanged prices. Low phosphorus inquiries aggregate around 1000 tons for second quarter.

The Emporium Iron Co. banked its blast furnace at Emporium, Pa., Feb. 10 owing to conditions in the coke market and plans to resume production when the coke market justifies.

Buffalo, Feb. 23.—New inquiry for pig iron does not exceed 3000 tons. Some former inquiries for lots ranging up to 1500 tons were withdrawn when makers declined to shade $21, base. Makers look for a renewal of buying soon as shipments on old contracts are nearly completed. The second quarter range for low silicon foundry and malleable is $21 to $22. Differentials are asked. Last week's sales were notable for the large number of small lots of high silicon iron.

Cleveland, Feb. 23.—Pig iron sales continue of a routine character, furnace interests with headquarters here booking a total of about 12,000 tons during the past week. The movement of pig iron on contracts previously closed has held up well, and more hand-to-mouth buying is noted as melters round out their requirements for this quarter. The market is quieter than a week ago, and the tone is slightly easier, although $20.50, base valley, and $22.50, lake furnace, applied on most of the business taken. Sales in Cleveland have been restricted to a few carloads at $22.50, base, furnace. The market here is practi-

(*Concluded on Page* 540)

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$21.00
Bessemer, Pittsburgh	22.76
Basic, valley	20.00
Basic, Pittsburgh	21.76
Basic, Buffalo	20.00 to 20.50
Basic, del., eastern Pa.	22.50 to 23.00
Malleable, valley	20.50
Malleable, Pittsburgh	22.26
Malleable, del., Cleveland	22.26 to 22.50
Malleable, Chicago	23.00
Malleable, Buffalo	21.00
Malleable, del., eastern Pa.	24.00 to 24.75
No. IX, eastern del., Phila.	23.50 to 24.76
No. IX, Buffalo	22.50 to 23.50
No. 1 foundry, Chicago	23.50
No. 2 foundry, valley	20.50
No. 2 foundry, Pittsburgh	22.26
No. 2 foundry, Buffalo	21.00
No. 2 foundry, Chicago	23.00
No. 2 foundry, Granite City	23.50 to 24.00
No. 2 foundry, Ironton fur.	21.00
No. 2 foundry, del., Cleveland	22.26 to 22.50
No. 2 foundry, del., Phila.	23.39 to 23.76
No. 2 foundry, N. J., tidewater	23.39 to 24.76
No. 2X, eastern del., Phila.	23.89 to 24.26
No. 2X, east, N. J., tidewater	23.89 to 25.26
No. 2X, foundry, Buffalo, furnace	21.50
No. 2X, eastern del., Boston	25.65 to 26.65
No. 2X, Buffalo, del., Boston	25.91 to 26.91
Continental foundry f.o.b. Boston	20.50 to 21.50
India, 2.25 to 2.75 silicon, delivered cars, Boston	21.00 to 22.00
No. 2 Alabama, Birmingham	22.00 to 23.00
No. 2 Alabama, Cincinnati	26.69
No. 2 Tenn., Birmingham	21.50
No. 2 Tenn., Cincinnati	25.19
No. 2 southern, Philadelphia	27.01 to 28.01
No. 2 southern, Chicago	28.01
No. 2 southern, Chicago (barge and rail)	26.18
No. 2 southern, Boston (rail and water)	27.91 to 28.91
No. 2 southern, Cleveland	27.01 to 28.01
No. 2 southern, St. Louis	25.42 to 26.42
No. 2X, Virginia, furnace	23.00 to 23.25
No. 2X, Virginia, Phila.	28.17 to 28.42
No. 2X, Virginia, Jersey City	28.54 to 28.79
No. 2X, Virginia, Boston	28.92 to 29.17
Gray forge, eastern Pa.	22.50 to 23.00
Gray forge, val. del. Pitts.	21.76
Low phos., standard, valley	28.00 to 28.50
Low phos., standard, Phila.	24.76 to 27.79
Low phos., Lebanon, furnace	23.00 to 24.00
*Low phos., English	24.26 to 24.76
Charcoal, Birmingham	31.00 to 32.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $27.50; 6 per cent $28.50; 7 per cent $29.50; 8 per cent $30.50; 9 per cent $32.00; 10 per cent $34.00; 11 per cent $36.00; 12 per cent $38.00; 13 per cent $40.00; and 14 per cent $42.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $36.00; 11 per cent $38.00; 12 per cent $40.00; 13 per cent $42.00; 14 per cent $44.00; 15 per cent $46.00; 16 per cent $49.00; 17 per cent $51.50.

*Duty paid, delivered Philadelphia consumers.

The Market Section

Coke

Connellsville Furnace Fuel Drops to $3.50 to $4—Readjustments Still in Progress

ONE of the latest sales of Connellsville beehive furnace coke was made at $4 for February delivery to a valley stack, although distress coke has been sold at $3.50. Dealers making the latter sales lost $7 a ton. The readjustment still is in progress; some blast furnace users refuse to pay over $3.75 for March. Demand from foundries is more active.

Pittsburgh, Feb. 23.—The adjustment period still is on in the beehive coke market and may last until late in March. The number of ovens going out is increasing almost daily. No new orders are received from the East, except for by-product coke. That grade is taking precedence in market activity. Beehive coke makers believe eastern demand is over for the season. Much beehive coke on piers is being diverted after cancellation of orders. Some is being sold at lower figures. Certain dealers are accepting losses of $7 a ton or more, taking $3.50 a ton in order to move coke which cost $10.50. Other distress lots are bringing $3.75. One buyer's offer to pay $3.75 for a carload or two daily during March has not been accepted. The regular market on beehive furnace coke is $4. Crushed coke is quoted $5. Makers are taking $4.50 to $4.75 when they must supply cars. The only business from blast furnaces noted lately was the purchase of several thousand tons for February delivery by the Struthers Furnace Co. at $4. The company will close shortly for additional March requirements. Foundry coke demand is increasing, deliveries on contracts expanding since the foundry melt is somewhat better. Quotations range from $5 to $6.

Production of coke in the Connellsville region for the week ended Feb. 13 was 245,060 tons, compared with 250,840 tons the preceding week, according to the *Connellsville Courier*.

Boston, Feb. 23.—The spot coke market is demoralized. Welsh coke which has arrived since the strike settlement is offered at $5 below the quotation a week ago. Commercial consumers generally have overstocked due to anxiety concerning future supply. The by-product coke producers are far behind on domestic delivery. Foundry shipments hold up well and the price is unchanged at $13, delivered.

New York, Feb. 23.—Spot demand for foundry coke is steady in this district, but owing to the withdrawal of most of the domestic heating demand prices are dropping rapidly. Current prices on spot foundry coke range from $5.50 to $7, Connellsville. Furnace coke for miscellaneous uses is bringing $4.25 to $4.75, Connellsville. The market on by-product foundry coke is unchanged, $11.01 to $11.52, delivered at Newark and other northern New Jersey consuming points, depending on the freight rates.

Cincinnati, Feb. 23.—Demand for all grades of coke in this district continues active. Producers and sellers are shipping considerable Wise county foundry and furnace fuel to the eastern seaboard on the basis of $6, ovens.

St. Louis, Feb. 23.—Demand for domestic coke has declined, but the movement continues large, and by-product interests in this district believe they have developed outlets for their coke which will not close even when normal conditions are restored in the anthracite region. Demand for metallurgical coke is good, but of a routine character. Foundries are covered. Shipments of industrial grades since Feb. 1 have been considerably heavier than in the corresponding period a year ago. Prices are quotably unchanged, but the trend is easier.

Coke Prices

Beehive, Ovens

Prices per net ton

Connellsville furnace	$ 3.75 to 4.00
Connellsville, foundry	5.00 to 6.00
New River foundry	7.00 to 8.00
New River furnace	5.00 to 6.00
Wise county furnace	5.00 to 6.00
Wise county foundry	6.50 to 7.00
Alabama foundry	5.50 to 6.00
Alabama furnace	5.00 to 5.25

By-Product

Foundry, Newark, N. J.; del.	$11.01 to 11.52
Foundry, Chicago, ovens	10.50
Foundry, New England, del.	13.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill.	10.00
Foundry, Birmingham	5.50 to 6.00
Foundry, Indianapolis, del.	11.25

Iron Ore

Furnace Requirements Being Figured —Prices Not Yet Determined

ORE PRICES PAGE 562

Cleveland, Feb. 23.—Prices of Lake Superior iron ore for 1926 have not been determined, and some producers believe a month may elapse before the market is opened. The inquiry from the Ford Motor Co. is the only one pending. Sellers are figuring with customers on requirements. A few inquiries are in the market for prompt shipment of small tonnages of ore from dock. The Lake Superior Iron Ore association reports the following consumption in January and balances at lower lake ports and furnaces:

	Tons
Ore consumed in December	4,964,515
Ore consumed in January	5,042,792
Increase in January	78,277
Ore consumed in January 1925	5,241,992
Ore at furnaces Feb. 1, 1926	25,412,086
Ore on Lake Erie docks, Feb. 1, 1926	6,622,533
Total at furnaces and Lake Erie docks Feb. 1, 1926	32,034,619
Total, Feb. 1, 1925	31,153,594

Ferroalloys

Report Ferromanganese Shaded in Recent Transactions—Shipments Are

New York, Feb. 23.—Statements by consumers indicate that the $115 duty paid tidewater price may have been shaded on some recent ferromanganese business. No cutting is apparent in this market however, and the market here seems to be unchanged at $115. Since the recent purchases by the Andrews Steel Co. and the Colorado Fuel & Iron Co., sales have been confined to carloads or moderate sized lots. Recent transactions have included Norwegian, English and German, as well as domestic ferromanganese.

Shipments of spiegeleisen on contracts continue heavy and there is a scarcity of the 19 to 21 per cent grade. Current sales, which are at the rate of a few hundred tons a week, are restricted largely to 16 to 19 per cent quality which is bringing $33 at the furnace.

Special ferroalloys are steady. Shipments are going ahead rapidly on contracts and prices are unchanged. Users are well covered so that there is practically no spot buying. Tungsten ore has sold at $5.15 a unit c.i.f. or about $12.30 duty paid, for futures. However, some lower prices are heard of and also some higher from some holders of spot.

Pittsburgh, Feb. 23.—Shipments on contracts are practically the sole activity in ferromanganese as well as ferrosilicon and some of the other alloys. No new business has come up in the past week or so except a few single carloads of ferromanganese, including one or two which have gone to sellers of English material for nearby users at $115, Baltimore.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, per pound contained	1.14 to 1.18
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.00 to 11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 4.00
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent material)	122.50

†Duty paid

Plates

Pittsburgh Mills to Roll 30,000 Tons of Car Plates—Two Lake Freighters Up—Prices Steadier

WHILE plate business in the Chicago district has receded from recent heavy volume, mill interests at Pittsburgh are more plentifully supplied with orders. There is less tendency to quote 1.80c, Pittsburgh. About 30,000 tons of car plates will be rolled by Pittsburgh mills. Two lake freighters requiring about 10,000 tons of steel, mainly plates, are being figured.

PLATE PRICES, PAGE 528

Chicago, Feb. 23.—None of the chief outlets for plates is displaying any marked activity at this time and mills are in need of tonnage. Operations are fair, but schedules are on a week-to-week basis. Hopes are pinned on prospects of bringing in a new oil field in Oklahoma, with consequent tank demand. Most of the freight cars placed in the past week will be built in eastern shops. The Great Lakes Dredge & Dock Co. contemplates building a dredge requiring 1000 tons of plates. It is said the Roxana Petroleum Corp., St. Louis, will go ahead shortly with its refinery at East Chicago, Ind., for which the plate requirements are estimated at 10,000 tons. Plates are quoted at 2.10c, Chicago.

Pittsburgh, Feb. 23.—Much plate capacity still is idle throughout the country, particularly in the East. In this territory, however, mills have been more fortunate than those in other sections, as considerable car plate business has been placed. The latest of these involves about 30,000 tons for cars for the Seaboard Air Line railroad, most of which tonnage will be rolled by Pittsburgh mills, largely on standing contracts against which specification will be issued shortly. In Pittsburgh the price is 1.85c to 1.90c, but in northern Pennsylvania as low as 1.80c has been quoted to meet eastern competition. That minimum was the prevailing price last October.

Cleveland, Feb. 23.—Inquiries for two lake ore freighters requiring about 10,000 tons of steel, chiefly plates, have been revived by a large shipping interest. This proposition was first brought out some months ago but subsequently was deferred indefinitely. A disposition to hold plate prices more firmly, at least on the part of the larger producers, is apparent. The 1.80c Pittsburgh or 1.99c Cleveland figure has become more exceptional and 1.85c, Pittsburgh apparently is being made the minimum by some mills. Some of the latter report more miscellaneous tonnage at 1.90c this week than in some time. The volume of new business shows no appreciable change. A construction job involving 500 tons of plates is pending.

Cincinnati, Feb. 23.—The Stacey Mfg. Co. has received orders for two gas holders, each of 30,000 cubic feet capacity. One is to be erected at Petrolia, Kans., for the Empire Gas Co. and the other at Fairmount, Minn.

Philadelphia, Feb. 23.—Plate specifications are much improved. Some eastern mills now are unable to promise shipments under three to five weeks. Railroad specifications are particularly good. The price is firm at 1.80c, Pittsburgh.

CONTRACTS PLACED

300 tons, scattered elevated tanks, to the Riter-Conley Co., Pittsburgh.
120 tons, yacht for Henry J. Gielow, Inc., New York, to American Brown Boveri Electric Corp.
2300 tons, pipe line, Portland, Oreg., to Willamette Iron & Steel Co.
100 tons, dredge pipe for Tampa, Fla., to Pacific Coast Engineering Co.
200 tons, balance of penstock for San Joaquin Light & Power Co., Fresno, Calif., to Ferrum Co. who will supply German material.

CONTRACTS PENDING

3000 tons, pipe line, Medford, Oreg.; bids open March 9.
1500 tons, pipe line for San Rafael, Calif.; bids in March 16.
1750 tons, 10 barges for the New York Central railroad; Atlantic Works, Boston, contractor.
1000 tons, dredge for Great Lakes Dredge & Dock Co., Chicago; pending.

Officers Are Changed

National Engineering Co., 549 West Washington street, Chicago, manufacturer of sand mixers and engineers in sand handling and mixing equipment, has made some changes in its officers. H. S. Simpson is president, T. S. Hammond first vice president and S. T. Johnston second vice president. T. Kauffmann is secretary and treasurer. A. G. J. Rapp will have supervision of the engineering department.

Semifinished

Market for Second Quarter Untested—Spot Demand Is Quiet

WHILE no price decline is in prospect for sheet bars, billets and slabs for second quarter, buyers are waiting, and the market is untested. Makers' views are firm at $36, Pittsburgh, for sheet bars, and $35 for billets and slabs. A few inquiries for sheet bars have been issued. Specifications in most instances are up to date for sheet bars, billets and slabs.

SEMIFINISHED STEEL PRICES, PAGE 528

Pittsburgh, Feb. 23.—It now appears that no price decline will set in on second quarter supplies of semifinished steel. Buyers are in no hurry to close, but several new inquiries for sheet bars appeared in the past week. The quoted price is $36, Pittsburgh, on either open-hearth or bessemer grade. Billet buyers continue to hold back new inquiries, but specifications in every case are coming in voluntarily and are up to date. The quotation on 4 x 4-inch rerolling billets and slabs is unchanged at $35, Pittsburgh. One dollar higher is quoted on small billets, and $41 is the quotation on forging billets. Specifications for the latter still are active. Skelp is weak and now 1.85c to 1.90c is quoted, with 1.80c possible on large tonnages. No recent contracts have been closed but specifications for wheel skelp are active. Shipping instructions on wire rods are plentiful against $45 contracts. No new business is noted.

Cleveland, Feb. 23.—The market for semifinished material continues quiet, and operations by the leading maker here are practically unchanged from a week ago. Specifications are slow in developing. Sheet bars are quotable at $36, Youngstown, and standard billets and slabs are listed at $35.

Youngstown, O., Feb. 23.—No change in the semifinished steel situation is apparent. Practically all consumers of sheet bars have requirements for this quarter under contract. Consumers are specifying against contracts but the tonnage has fallen off slightly. Open-hearth and bessemer sheet bars and small billets are quotable at $36, Youngstown, and standard slabs and billets at $35, Youngstown. These prices are expected to prevail for second quarter although no definite action yet has been taken by producers.

Philadelphia, Feb. 23.—Henry Disston & Sons Co., closed for nickel-chrome rerolling billets during the past week. The amount is reported over 500 tons. Standard rerolling billets are quoted $35 to $36, Pittsburgh, and the forging grade $40 to $41, with most sales at $41.

The United States Cast Iron Pipe & Foundry Co. is strengthening the trestle over the Big Four railroad tracks at its Addystone plant near Cincinnati to permit easy transfer of pig iron from barges in the Ohio river into the company's yard.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	14.00 to 14.50
Boston (dealers)	11.00 to 11.50
Buffalo	15.50 to 16.50
Buffalo, No. 1	17.00 to 17.50
Chicago	13.75 to 14.10
Cincinnati (dealers)	13.00 to 13.50
Cleveland	15.50 to 16.00
Detroit	14.75 to 15.25
Eastern Pennsylvania	16.00 to 16.50
Bethlehem delivery	15.50 to 16.00
New York (dealers)	11.50 to 12.00
Pittsburgh	17.50 to 18.00
St. Louis	14.00 to 14.50
Valleys, No. 1	17.50
Valleys, No. 2	16.50

COMPRESSED SHEETS

Buffalo	15.00 to 15.50
Chicago	12.00 to 12.50
Cleveland	14.00 to 14.25
Detroit	12.50 to 13.00
Pittsburgh	16.00 to 16.50
Valleys	16.50

BUNDLED SHEETS

Buffalo	13.50 to 14.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	12.25 to 12.50
Eastern Pennsylvania	13.50 to 14.00
Pittsburgh	15.00 to 15.50
St. Louis	8.50 to 9.00

SHEET CLIPPINGS, LOOSE

Chicago	9.50 to 10.00
Cincinnati	9.00 to 9.50
Detroit	9.75 to 10.25

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Buffalo	17.00 to 17.50
Chicago	17.50 to 18.00
Cincinnati (dealers)	17.50 to 18.00
Cleveland (over 6 ft.)	16.50 to 17.00
Detroit	17.00 to 17.50
St. Louis	16.50 to 17.00

STOVE PLATE

Birmingham	14.00 to 14.50
Boston (consumers)	14.00 to 14.50
Buffalo	14.75 to 15.00
Chicago	16.25 to 16.75
Cincinnati (dealers) (net)	9.50 to 10.00
Cleveland	13.00 to 13.50
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	10.25 to 10.75
Pittsburgh	13.50 to 14.00
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo	19.00 to 19.50
Cincinnati (dealers)	17.00 to 17.50
Eastern Pennsylvania	20.00 to 21.00
Pitts. billet and bloom crops	22.00 to 22.50

SHOVELING STEEL

Chicago	13.75 to 14.00
Pittsburgh	14.00 to 14.50
St. Louis	14.00 to 14.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	17.00 to 17.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.00 to 21.00
St. Louis	15.00 to 15.50

FROGS, SWITCHES, GUARDS

Chicago (cut)	15.25 to 15.75
Eastern Pennsylvania	16.00 to 16.50
St. Louis	15.00 to 15.50

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	16.50 to 17.00
St. Louis	15.00 to 15.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	13.00 to 13.50
Boston (dealers)	13.00 to 13.50
Buffalo, No. 1	15.00 to 15.50
Buffalo, No. 2	16.00 to 16.50
Chicago, No. 1	14.25 to 14.75
Chicago, No. 2	13.75 to 14.25
Cincinnati, No. 1 (dealers)	9.50 to 10.00
Cleveland, No. 1	13.50 to 14.00
Eastern Pennsylvania	18.00
New York, No. 1 (dealers)	14.50 to 15.00
Pittsburgh, No. 1	14.00 to 14.50
Pittsburgh, No. 2	17.50 to 18.00
St. Louis No. 1	13.50 to 14.00
St. Louis No. 2	14.00 to 14.50

WROUGHT PIPE

Boston (dealers)	10.00 to 10.50
Buffalo	15.00 to 15.50
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	11.75 to 12.50

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	17.00

BUSHELING

Buffalo	14.50 to 15.00
Chicago, No. 1	12.25 to 12.75
Chicago, No. 2	9.00 to 9.50
Cincinnati, No. 1 (dealers)	10.00 to 10.50
Cleveland, No. 1	13.25 to 13.50
Cleveland, No. 2	13.00 to 13.25
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	15.00
St. Louis, No. 1	11.75 to 12.25

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston (chemical)	9.00 to 9.50
Buffalo	11.50 to 12.00
Chicago	9.50 to 10.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	12.00 to 12.50
Detroit	10.25 to 10.75
Eastern Pennsylvania	14.00
New York (dealers)	9.00 to 10.25
Pittsburgh	13.00 to 14.00
St. Louis	8.00 to 8.50

CAST IRON BORINGS

Birmingham (chemical)	15.50 to 16.50
Birmingham (plain)	8.00 to 8.50
Boston (chemical)	11.00 to 11.25
Boston (dealers)	9.00 to 9.50
Buffalo	13.00 to 13.50
Chicago	11.75 to 12.25
Cincinnati (dealers)	9.00 to 9.50
Cleveland	13.25 to 13.50
Detroit	10.75 to 11.25
Eastern Pennsylvania	14.00 to 14.50
Eastern Pennsylvania (chem.)	15.50 to 16.00
New York (dealers)	9.25 to 10.25
Pittsburgh	14.00 to 14.50
St. Louis	10.75 to 11.25
Valleys	13.00 to 13.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	9.00 to 9.50
Buffalo	13.00 to 13.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	13.00 to 13.50
Detroit	10.75 to 11.25
Eastern Pennsylvania	13.50 to 14.00
New York (dealers)	9.75 to 10.25
Pittsburgh	14.00 to 14.50

PIPES AND FLUES

Chicago	12.00 to 12.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	12.00 to 12.50
St. Louis	11.00 to 11.50

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago	14.75 to 15.25
Cleveland	13.50 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	11.50 to 12.00
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Buffalo	13.50 to 14.00
Chicago	10.00 to 10.50
Cleveland (under 10 in.)	13.25 to 13.75
Cleveland (over 10 in.)	13.25 to 13.75
Detroit	10.50 to 11.00
Pittsburgh	14.00 to 14.50

FORGE SCRAP

Boston (dealers)	9.00 to 9.50
Chicago	18.00 to 18.50
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	23.00 to 23.50
St. Louis	20.00 to 20.50

Iron Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	9.50 to 10.00
Buffalo	15.00 to 15.50
Chicago	14.50 to 15.00
Cleveland	14.00 to 14.50
Eastern Pennsylvania	15.00
Pittsburgh	16.50 to 17.00
St. Louis	11.25 to 11.75

STEEL CAR AXLES

Birmingham	19.00 to 19.50
Boston (shipping point)	18.00 to 18.50
Buffalo	18.50 to 19.00
Chicago	19.50 to 20.00
Cleveland	17.50 to 18.00
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	22.50 to 23.00
St. Louis	19.25 to 19.75

SHAFTING

Boston (shipping point)	18.00 to 18.50
Chicago	19.75 to 20.25
Eastern Pennsylvania	22.00 to 23.00
New York (dealers)	17.50 to 18.00
St. Louis	17.00 to 17.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	16.00 to 16.50
Boston (consumers)	17.50 to 18.00
Buffalo, iron	15.50 to 16.00
Bualo, steel	16.50 to 17.00
Chicago, iron	16.50 to 17.00
Chicago, steel	18.00 to 18.50
Cincinnati	12.50 to 13.00
Eastern Pennsylvania	18.00 to 18.50
New York iron (dealers)	14.50 to 15.00
Pittsburgh, iron	18.00 to 18.50
Pittsburgh, steel	20.00 to 20.50
St. Louis, iron	16.50 to 17.00
St. Louis steel	17.00 to 17.50

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 17.50
Boston	19.00 to 19.50
Buffalo	16.00 to 16.50
Chicago, No. 1 machinery	18.75 to 19.25
Chicago No. 1 railroad or agricultural	17.75 to 18.25
Cincinnati No. 1 Machinery cupola (net tons dealers)	18.50 to 19.00
Cleveland, cupola	17.25 to 17.75
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	18.00 to 18.50
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	17.00 to 17.50
San Francisco, delivered	20.00 to 21.00
Seattle	17.00
St. Louis, railroad	16.50 to 17.00
St. Louis, agricultural	16.25 to 16.75
St. Louis, machinery	18.00 to 18.50
Valleys	17.50

HEAVY CAST

Boston	17.50 to 18.00
Buffalo (breakable)	15.00 to 15.50
Cleveland	13.00 to 13.25
Detroit (Automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	14.00 to 14.50
Pittsburgh	14.00 to 14.50

MALLEABLE

Boston, railroad	19.50 to 20.00
Buffalo	18.50 to 19.00
Chicago, agricultural	16.50 to 17.00
Chicago, railroad	17.50 to 18.00
Cleveland, agricultural	18.00 to 18.50
Cleveland, railroad	19.00 to 19.50
ers)	15.00 to 15.50
Cleveland, agricultural	18.50 to 18.75
Cleveland, railroad	18.00 to 18.50
Detroit	15.50 to 16.00
Eastern Pennsylvania, railroad	17.00
Pittsburgh, railroad	18.50 to 19.00
St. Louis, agricultural	13.50 to 14.00
St. Louis, railroad	16.00 to 16.50

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	17.00 to 18.00
Boston (dealers)	12.50 to 13.00
Buffalo	17.00 to 17.50
Chicago	16.25 to 16.75
Cleveland	17.25 to 17.50
Eastern Pennsylvania	17.50 to 18.00
New York	14.00 to 14.50
Pittsburgh district	19.00 to 19.50
St. Louis	16.25 to 16.75

LOCOMOTIVE TIRES

Chicago, No. 1	18.00 to 18.50
Chicago, cut	18.00 to 18.50
St. Louis, No. 1	17.00 to 17.50

LOW PHOSPHORUS PUNCHINGS

Chicago	17.00 to 17.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.00 to 20.50

Scrap

Some Further Declines But Signs of Returning Strength Are Shown—Buyers Hold Off

CHANGE in sentiment is apparent in the scrap market, while some grades have yielded fractionally, and signs appear to indicate a turn upward may be near. Some bids for railroad material have been at better levels, though many buyers continue to doubt the immediate future. Prices have dropped slightly on a few grades but the change has not been material.

Chicago, Feb. 23.—Consumers of iron and steel scrap continue to eye the market askance and to pare their purchases to a minimum, but the aggregate placed in the past week was good. Comparatively little heavy melting steel moved, but foundry grades displayed more activity than in a number of weeks. None of this buying was at prices warranting advances, but in some instances a slight drop. A number of dealers are more optimistic and have reflected this in bidding for railroad material, but the larger interests see no real change. Dealers are trading in melting steel at $14 and several small sales to consumers are reported at $14.10, which seems the top.

Boston, Feb. 23.—A moderate improvement in demand for cast scrap has developed. Heavy melting steel remains stagnant with at least one dealer reporting a drop of 50 cents. A sale of 400 tons of heavy cast to a Bridgeport, Conn., consumer at $18.25, delivered, is reported.

New York, Feb. 23.—Trading in scrap continues slack, with a downward revision in several grades. Borings and turning which have been holding relatively steady over the past few weeks, have dropped sharply, $1 a ton. Steel shafting has undergone a similar decline. Yard steel is off 25 cents. Wrought is holding at the levels established a week ago. Heavy and machinery cast grades are perhaps the steadiest of the entire list.

Philadelphia, Feb. 23.—Iron and steel scrap buying in this district is small and scattered. Sales are principally among dealers. Prices on some grades are lower although the market generally is steady.

Buffalo, Feb. 23.—The scrap market is slightly weaker. Dealers are the high bidders for heavy melting steel and will pay $16.25 for good grade material to ship on unfilled $17 contracts. One consumer has a nominal offer of $15.50 for this material, it is reported. Hydraulic compressed and busheling are fractionally lower. Stove plate alone has advanced and Buffalo district sales are reported to have been made at $15.

Pittsburgh, Feb. 23.—Large sales of scrap still are rare but some small ones have been arranged this week. For instance, heavy melting steel has been sold in lots of 1000 tons to nearby users at $18. Other sales were noted at $17.50 depending upon grade. Some dealers will pay only $17 but no consumers have bought at that figure although one or two have been bidding no more than that minimum.

Cleveland, Feb. 23.—Little change is apparent in the iron and steel scrap situation in this district. Consumers persistently refuse to entertain tonnage offers and inquiries are unimportant, trading being largely confined to dealers. The natural consequence is a weak market in most grades with nothing in the outlook to prove encouraging.

Cincinnati, Feb. 23.—Aside from the fact that consumers are buying small tonnages of specialties, interest in the scrap market is lacking, and the situation is weak. Mills appear to have sufficient materials on hand to meet their immediate requirements.

Detroit, Feb. 23.—Iron and steel scrap continues to drag. Demand is showing only nominal improvement and dealers appear dubious concerning the immediate outlook, buying in limited quantities for actual orders.

St. Louis, Feb. 22.—Iron and steel scrap continues dull and featureless, but the general market has improved to the extent that no further declines are recorded, and heavy melting and shoveling steel, No. 2 railroad wrought, and some other items advanced fractionally. The only event worthy of note during the past two weeks or more was the purchase by the American Steel Foundries Co. for its East Side plant of a round tonnage of steel specialties.

Birmingham, Ala., Feb. 22.—Little new buying of old material is being done. Quotations are weak. Heavy melting steel is $14 and can be done under that price. Few cancellations have been made and only a few orders to hold back on delivery.

Sheets

Present Prices Reaffirmed for Second Quarter — Fullfinished Quoted 4.40c

SHEET prices for second quarter have been reaffirmed at present levels by the leading interest and various independent manufacturers. The only change in the schedule is that all large producers now recognize the recent decline in fullfinished and quote 4.40c, Pittsburgh. Michigan motor car manufacturers have placed considerable tonnage in the past week.

SHEET PRICES, PAGE 528

Pittsburgh, Feb. 23.—Improvement in several directions is noted in the sheet market. Demand is heavier, orders from automotive, railroad car, agricultural implement and metal furniture industries as well as other manufacturing lines being more frequent. Prices are firmer. Some independents have opened their books for second quarter, as did the American Sheet & Tin Plate Co. last Saturday, with prices unchanged on blue annealed, black and galvanized, namely 2.50c, 3.35c and 4.60c. On full-finished sheets the price is 4.40c Pittsburgh recognizing the recent cut of $2 a ton. Attractive tonnages are coming to all makers here every few days from automobile manufacturers, although this buying is not in full stride. A number of buyers in automotive, railroad car and other lines who have long deferred purchases are coming in with rush orders, and the mills are doing their best to comply with requests for early shipment. Orders from agricultural implement makers were received here every day last week. Makers of sheets for the metal furniture manufacturers note improvement in demand. Orders for various grades made by the leading interest received so far this month represents approximately 88 per cent of its high record for bookings. This interest is increasing operations this week about 5 per cent and probably will average 80 per cent. The average for the entire industry is about 85 per cent.

Boston, Feb. 23.—Sheet sales have been quiet during the week at Boston. Galvanized sheets are firm at 4.60c Pittsburgh, but black sheets are soft and prices as low as 3.35c Pittsburgh, have been made.

Chicago, Feb. 23.—Specifications for galvanized and black sheets have improved the past week to the extent schedules can be made up one week farther ahead and rollings are more balanced. Blue annealed continues in a class apart from black and galvanized and mills are scheduled practically solid through this quarter. Second quarter prices are looked for shortly, as an increasing number of users are inquiring for this delivery. One maker believes black and galvanized may stand pat but blue annealed may be advanced. The levels of 4.75c, Chicago, for galvanized, 3.50c for black and 2.65c for blue annealed are pronounced firmer.

St. Louis, Feb. 22.—Quieter condi-

tions are noted in the sheet market. Users are specifying slowly on material previously ordered. The leading local producer is operating at 75 to 80 per cent of capacity. Prices were unchanged.

Youngstown, O., Feb. 23.—Sheet prices put in effect Nov. 19, 1925 have been reaffirmed by the majority of sheet producers, to apply to second quarter and for the remainder of this quarter. These include 2.50c for blue annealed, 3.35c for black, 4.60c for galvanized and 4.40c for automobile stock, all base, f.o.b. Pittsburgh. Practically all the large producers have been adhering to these prices. About two weeks ago when the price of automobile sheets receded $2 a ton, to 4.40c, signs of weakness began to appear in the common market. Black tonnage was taken by some of the smaller mills at 3.25c, and by a few of the high grade sheet mills which lacked specifications. Keen buyers taking advantage of the situation were successful in securing tonnage of black sheets under going prices. The disposition of a few producers to sell below the prevailing market level has injected uncertainty into the situation. Consumers, endeavoring to place tonnage at concessions, so far have been unable to alter the price policy of the larger producers. Order books disclose entries at full prices in many instances. Inquiry continues quiet while specifications are small in volume. Bookings of high grade tonnage show considerable betterment. Several of the large makers of automobiles in the Detroit district have placed business in large volume for second quarter shipment. The price was 4.40c, base, with the revised clause on the disposition of seconds applying. District sheet mill operation this week is at 82 per cent of capacity compared with 90 per cent a week ago.

Philadelphia, Feb. 23.—Sheet buyers are expected to take action during the coming week on second quarter requirements. All grades recently have been shaded $1 to $2 on attractive business, although less shading was noted during the past week.

Tin Plate

Consumers Increasing Their Orders—May Specifications Issued

TIN PLATE PRICES, PAGE 528

Pittsburgh, Feb. 21.—Substantial additions have been made to tin plate orders from manufacturers of food containers, oil and general line cans. The American Sheet & Tin Plate Co. now has all the tonnage it can produce by June 30 next, even when it puts into operation its Pittsburgh works about the middle of March. May specifications are being received.

The leading interest now is operating 90 per cent of capacity. The general average is slightly higher than 90 per cent. The price still is $5.50.

New York, Feb. 23.—A brisk demand for American tin plate continues to come from abroad. At least 10,000 boxes have been placed during the past week for shipment to Japan and South America. Prices done recently for export have ranged around $4.40 to $4.75 per base box, Pittsburgh, or equivalent. Recent business of the Nippon Oil Co. was placed at around the lower figure and this price is said to have been brought out by competition from English mills.

Strip Steel

Second Quarter Prices Will Not Be Higher Than First

STRIP PRICES, PAGE 528

Pittsburgh, Feb. 23.—Makers of hot and cold strips are now resigned to the fact that higher prices are not obtainable for second quarter. They indicate they are ready to take second quarter business at present levels, 2.30c on hot and 3.90c on cold. Business has picked up during the past week or so, specifications have been more active and buying more diversified, with larger tonnages coming in from the automotive industry which for a time seemed to lag. Operations of strip mills continue to average 80 or 85 per cent.

New York, Feb. 23.—Some makers have opened their books on strip steel for second quarter, reaffirming present prices. The price on hot strip is 2.50c, base Pittsburgh, for widths under 6 inches and 2.30c for six inches and over.

Green Bay Drive Calk Co., Green Bay, Wis., has increased capital from $75,000 to $100,000, to increase facilities.

Pipe

Line Pipe Awards Feature Buying—More Inquiries Appear—Cast Demand Continues Heavy

FEATURED by award of 18,970 tons for a pipe line by Magnolia Petroleum Corp., the line pipe market is more active. Standard Oil subsidiaries will take 40,000 and 9000 tons for gas and oil lines. Cast iron pipe continues active. New York water department will purchase 2000 tons soon and 8000 tons later. Cast pipe prices are firm except where foreign competition is met.

PIPE PRICES, PAGE 528 AND 560

Chicago, Feb. 23.—Cast iron pipe demand continues seasonably good. On a few smaller sizes some makers are booked into May. Spring programs by the smaller central west cities are expected to approximate those of 1925. The market on cast pipe shows variations. A number of small lots are being booked quietly at $42, Birmingham, or $50.20 for 6-inch and larger, but where makers are desirous of taking a specific size they do not hesitate to dip down to $41. Four-inch pipe is quoted at $53.20 to $54.20, Chicago.

New York, Feb. 23.—Magnolia Petroleum Co. it is learned here has placed an order for 271 miles of 8-inch line pipe for a line from Beaumont, Tex., to Eldorado, Ark. This is the largest pipe line business to come out in a long time and aggregates 18,970 tons.

An even larger project is about to be put out by one of the Standard Oil subsidiaries. This involves about 40,000 tons for a gas line, most of which is to be 20-inch pipe with 10-inch feeders. Another Standard Oil interest is on the point of placing 110 miles of 8-inch oil line pipe involving 9000 tons.

An inquiry is pending here for 1100 tons of casing for Japan.

The long expected cast iron pipe tonnage for the local water department now is coming out. Bids will close March 5 on 2000 tons and specifications for an additional 8000 tons or more will be brought out within the next few days. Municipal demand generally is more active. Prices are firm.

Pittsburgh, Feb. 23.—Pipe mills expect that by April 1 they will be operating at capacity. Orders are increasing from week to week in number and volume. As yet, full weight merchant pipe orders are not large but jobber are ordering one, two or three carloads at a time. Improvement is more marked in oil country goods, and larger orders are more frequent involving 100 to 500 tons at a time, although the majority call for 50 to 100 tons each. Definite inquiries for oil lines are lacking but indications are that more of these are in process of development. The Empire Gas & Fuel Co., Tulsa, Okla., is surveying for a 23-mile gas line, involving about 1500 tons, to the Davenport field. Pipe mill operations continue to average about 75 per cent.

Birmingham, Ala., Feb. 22.—Cast iron pressure pipe plants are operating at capacity and shipments equal production. Quotations are strong and the trend is upward. Pipe six-inch and over is quoted at $41 with $1 more being asked on second quarter delivery.

CONTRACTS PLACED

200 tons, Toledo, O., to United States Cast Iron Pipe & Foundry Co.
600 tons, Rockford, Ill., to United States Cast Iron Pipe & Foundry Co.
100 tons, 8-inch class B pipe, Eureka, Calif.,

to American Cast Iron Pipe Co.
400 tons, Schenectady, N. Y., to United States Cast Iron Pipe & Foundry Co.

CONTRACTS PENDING

5850 tons, cast pipe, 117,700 feet galvanized iron pipe, 35,350 pounds galvanized fittings, 20 tons lead pipe, 615 gate valves, 500 cast iron valve boxes and 300 cast iron frames and covers, Portland, Oreg.; bids in soon.
5600 tons, Chicago; bids in March 2.
2000 tons, water department, New York; bids in March 5.
8000 tons, water department, New York; specifications out this week.
2000 tons, Buffalo; United States Cast Iron Pipe & Foundry Co. low bidder.
2000 tons, Washington; United States Cast Iron Pipe & Foundry Co. low on centrifugal pipe; B. Nicoll & Co. low on sand cast.
600 tons, Newark, N. J.; Donaldson Iron Co. low bidder, on approximately 220 tons, 30-inch, Warren Foundry & Pipe Co. low on remainder.
300 tons, Middletown, Conn.; pending.
125 tons, water department, New York; pending.
733 tons, 6 to 16-inch class B pipe for Bellingham, Wash.; bids in.
2500 tons, 30, 32 and 36-inch pipe for San Diego, Calif.; bids in March 22.
194 tons, 4 to 16-inch class B pipe for Glendale, Calif.; bids in March 2.
106 tons, 8 and 10-inch class B pipe for Arcadia, Calif.; bids received.
100 tons, 4 and 6-inch class B pipe, Redwood City, Calif.; bids in March 1.
5850 tons, Portland, Oreg.; bids will be asked within near future.
450 tons, water pipe, Waterbury, Conn.; pending.

Bolts, Nuts, Rivets

Specifications Are Being Made Freely —Prices Firm

NUT AND BOLT PRICES, PAGE 528

Pittsburgh, Feb. 23.—Large users continue to specify freely against nut, bolt and rivet contracts. Jobbers are buying sparingly, low stocks being desired. Rivet prices have not been entirely firm at 2.50c, that level being shaded in some directions, although it is minimum here with 2.60c still quoted. The 50, 10 and 10 per cent discount applies on large machine bolts and operations are on a 60 to 75 per cent basis.

Chicago, Feb. 23.—Specifications for bolts and nuts continue at a level higher than a year ago. The automobile industry is taking more material than last month or last February. Jobbers are buying closely and have small stocks. Prices on bolts and nuts are firm on the basis of 50, 10 and 10 off for large machine bolts. Second quarter prices will be determined in about ten days but no changes are looked for. Structural rivets are holding at 2.75c, Chicago, but small rivets still range from 70 and 10 to 70 and 5 off.

Cleveland, Feb. 23.—Bolt and nut demand continues to expand while deliveries are becoming more deferred. Producers, usually able to promise shipments in two weeks, now are pushed to make deliveries in two to four weeks. Quotations are firm. Current rivet specifications are fair but new business continues to lag. Large structural rivets are firm at 2.60c, base Pittsburgh.

Bars

Shipments and Specifications Continue Large With Sales on a Somewhat Lower Basis

MILLS are in an easier position as to shipments of soft steel bars, as buying has eased and backlogs are much smaller. This seems to indicate a consumer belief that future covering may be neglected. Intimations of higher prices are being disregarded. Pittsburgh mills find specifications unchecked. The situation is indecisive, some centers finding heavier buying.

BAR PRICES, PAGE 528

Chicago, Feb. 23.—Shipments of soft steel bars have been so much heavier than incoming business that mill backlogs have become shortened and prompt delivery is possible on practically all sizes. This indicates not so much a contraction in consumption as an easier feeling by consumers toward supplies and prices. Two makers intimate stiffer prices are ahead, but consumers are not apprehensive and their placement of future requirements is lighter. Eastern makers continue to seek business here, meeting the 2.10c, Chicago level, and until Pittsburgh strengthens consumers here look for no changes in Chicago mill prices. Implement makers continue to take out heavy tonnages of bars. Drop forge and cold rolled interests also are heavy buyers.

Rail steel continues to feel the dearth of building bar demand but fence post and bed manufacturers are taking their quotas. Bar iron is on a week-to-week basis. Both rail steel and bar iron are quoted at 2.10c, Chicago.

New York, Feb. 23.—Specifications for steel bars are somewhat slower than in recent weeks. Most users and jobbers have substantial tonnages on hand and are not in a hurry to add to them. The severe snow storms have had some bearing on this situation, particularly with jobbers, who in some cases are a couple of weeks behind in deliveries. Some business continues to be taken by mills at 1.90c base Pittsburgh, but the usual price is 2.00c base Pittsburgh.

Buffalo, Feb. 23.—Bar price is firm at 2.265c. Operation is 80 per cent of capacity. A good volume of business has been booked within the past ten days and inquiry is holding up almost to former proportions.

Pittsburgh, Feb. 23.—Because specifications on merchant steel bars show no interruption, bar mills, possibly with the exception of tin plate mills, show the best operating schedules, being practically full. Cold bar finishers are increasing specifications, taking more tonnage for the automotive trade. Other lines of manufacture likewise are increasing, and February promises to exceed January tonnage by a fairly large margin. The price is firm at 2.00c.

Refined iron bar demand is better than at any time so far this year.

Cleveland, Feb. 23.—While steel bars have been constantly held at 2.00c, Pittsburgh or 2.19c, Cleveland, there is more talk in the market that the larger mills especially are determined to maintain this figure. In fact, one of them is reaffirming a quotation of 2.10c, Pittsburgh on small lots. Tonnage is keeping up well and is increasing in amount from various automobile builders who are expanding their production schedules.

Philadelphia, Feb. 23.—Steel bar specifications are better than for most other heavy finished lines although orders are not replacing shipments. Some mills still are unable to promise delivery under four to six weeks. Railroad demand is especially good. The price on bars is firm at 2.00c, Pittsburgh.

Cold Finished Steel

Ordering Being Done at Better Rate in Small Lots

Pittsburgh, Feb. 23.—Orders for cold finished steel bars do not involve large tonnages but during the past week a noticeable improvement took place. More automotive industries have bought and other consuming lines are active purchasers. Makers have not done anything regarding second quarter and while feeling the need of an advance in price, state that at least there will be no decline from the present level, 2.50c. Plants are operated at 80 to 85 per cent of capacity.

Hoops and Bands

Added Business at Full Price Coming to Makers

HOOP PRICES, PAGE 528

Pittsburgh, Feb. 23.—Additional orders for hoop and band sizes of hot-rolled flats came in during the past week to increase makers' backlogs. This was at the full 2.50c, base, which is exceptionally firm. This will be the level for second quarter business and makers now have books open for that period, although users are not hurrying with their contracts. Operations of narrow hot strip mills are practically full.

Structural Shapes

Activity Continues Mostly Tentative as Inquiries Develop But Awards Are Deferred —January Steel Awards Drop

BUYING for spring building programs has not increased structural shape bookings as yet. Inquiries are numerous, and heavy awards are expected in March. January's fabricated structural steel awards totaled 179,950 tons, the lowest since February, 1925. Large tonnages continue to be scarce, the current week finding but few new projects requiring more than 1000 tons. Two projects at Chicago will take 7500 tons. Award of the Union terminals tonnage at Cleveland is expected shortly. Concrete bars for this are reported placed. New York subway work took 6500 tons this week.

Plain material prices show no change, although attempts are being made to stiffen quotations for second quarter, at 2.00c, Pittsburgh.

STRUCTURAL SHAPE PRICES, PAGE 528

New York, Feb. 23.—Structural trading is more active although still well below the volume placed in the closing weeks of last year. Until architects can finish specifications on work rushed into the market last fall prior to the abolition of the pound price basis and can complete new plans entirely in accordance with the fabricators' policy, the lull is expected to continue. March is expected to see much new work. Meanwhile mills are becoming increasingly active as specifications on old orders are completed. Prices are unchanged. Another subway section requiring 6500 tons was awarded to Bethlehem Steel Co.

Boston, Feb. 23.—Shipments of structural shapes have exceeded orders during the week and also for the month to date. Eastern mills still are well booked on many sizes. Plain material holds steady at 1.90c Pittsburgh or 2.265c delivered.

Philadelphia, Feb. 23.—Structural shape demand is shrinking somewhat. Mills are able to ship most standard sections promptly. Prices are steady at 1.80c to 2.00c Pittsburgh and 1.80c to 2.05c eastern mill.

Pittsburgh, Feb. 23.—Prices on material fabricated and delivered to the job still are low, many shops making strenuous efforts to collect work in order to keep plants operating. Bids on a certain local job recently varied from $60 to $69 per ton delivered. The largest award of the week is the building for the Press Publishing Co. Plain material still is quoted at 1.90c.

Buffalo, Feb. 23.—Shape prices have steadied at 2.165c, Buffalo. Some good sized tonnages were taken earlier in the month at 2.065c but this price can not be duplicated now. Both shape mills and fabricators have a good volume of tonnage on hand or in prospect.

Cleveland, Feb. 23.—Local structural sellers during the past week booked but little tonnage. Competition on the union terminals tower building and bridges requiring around 25,000 to 30,000 tons is developing prices which some fabricators classify as giving steel away. More pending tonnage is in the market here than any time in a year. Plain material prices are steady at 1.90c to 2.00c, Pittsburgh. There is some rumor of mills attempting to establish 2.00c Pittsburgh as the second quarter level. Smaller fabricators in this district are feeling the pinch of light backlogs and fabricated quotations on jobs under 50 tons are weakening.

Chicago, Feb. 23.—Competition between fabricators has become sharper as pending work and awards in structural steel have tapered off. Prices are being complained of. Architects have a good volume of work on their boards but are slow putting it out for bids. Determination of second quarter prices on plain material may release some. Mills talk of an advance over 2.10c, Chicago, but fabricators do not seem apprehensive, especially with eastern makers so actively seeking business here. The Duffin Iron Co. states it has a contract with the Wells Bros. Construction Co. for 4000 tons for the addition to the Furniture Mart, Chicago. A Commonwealth Edison Co. power house now out for bids specifies 4000 tons.

Awards Compared

	Tons
Awards this week	33,771
Awards last week	17,221
Awards two weeks ago	20,674
Awards this week in 1925	47,824
Average weekly awards, Jan.	21,498
Average weekly awards, 1926.	21,861
Total awards to date, 1925	320,729
Total awards to date, 1926	186,803

CONTRACTS PLACED

6500 tons, subway route 78, section 4A, New York, to Bethlehem Steel Co.; Phoenix Bridge Co. as previously reported was low on direct bidding.

5000 tons, in the following four contracts:
Apartment 27-31 West Eighty-sixth street New York, to Shoemaker Bridge Co.
Apartment hotel, 17 West Eighty-sixth street, New York, to Shoemaker Bridge Co.
Nurses home, Mt. Sinai hospital, East Ninety-eighth street, New York, to Levering & Garrigues Co.
Bakery addition, 165th street and Clair avenue, New York, to Geo. A. Just Co.

4500 tons, Hunter and Dulin building, San Francisco, to United States Steel Products Co.

4450 tons, subway section 1, route 102, New York, previously reported placed, awarded to American Bridge Co. through Rosoff Construction Co. General contractor.

4000 tons addition to Furniture Mart Co., Chicago, through Wells Bros. Construction Co., to Duffin Iron Co.

2000 tons, building for the Press Publishing Co., Pittsburgh, through the W. T. Grange Construction Co., general contractor to the Fort Pitt Bridge Works.

2000 tons, approximately, Brody building, Madison avenue and Thirty-fourth street, New York, to Hay Foundry & Iron Works.

1300 tons, miscellaneous bridgework for Seaboard Air Line, through Foley Bros., St. Paul, general contractors, to American Bridge Co.

145 tons, garage for Ed. Schuster & Co., Milwaukee, to C. Hennecke Co., Milwaukee.

335 tons, Union Pacific railroad work, 206 tons for Thirty-eighth street subway, Denver, and 129 tons for signal bridges and cantilever signal supports, Omaha, Nebr., to unstated fabricator.

100 tons, bridge for Oklahoma state highway commission, Clayton, Okla., to Des Moines Steel Co.

850 tons, Grant building, San Francisco, to Moore Dry Dock Co.

700 tons, main exchange telephone building, Pasadena, Calif., to Union Iron Works of Los Angeles.

240 tons, Sterling exchange telephone building, Pasadena, Calif., to Moore Dry Dock Co.

126 tons, Elmhurst school, Oakland, Calif., to Pacific Coast Engineering Co.

150 tons, plates and shapes, mostly shapes, for Caterpillar Tractor Co., Oakland, Calif., to an unnamed eastern mill.

950 tons, bridgework for Long Island railroad, New York, to unnamed fabricator.

800 tons, two buildings, 400 tons each, for Public Service Corp. at Athenia and Trenton, N. J., contract reported awarded Phoenix Bridge Co.

625 tons, laboratory building for the West Penn hospital, Pittsburgh, through D. T. Riffle, general contractor, to the American Bridge Co.

200 tons, miscellaneous work including 100 tons, building for the Hachmeister-Lind Chemical Co., Weehawken, N. J., to the Guibert Steel Co.

600 tons, Southern railway station, Greensboro, N. C., to unnamed fabricator.

900 tons, two Pennsylvania railroad bridges, one in Ohio, the other at Long Island City, N. Y., to American Bridge Co.

450 tons, temporary subway shoring, New York, to American Bridge Co.

150 tons, bank, Leonia, N. J., to Silback, Meyer & Co.

350 tons, picture theater, Fordham road and Jerome avenue, New York; to Owego Bridge & Iron Co.

250 tons, apartment 221 West Twelfth street, New York, to Schweibish Bros. Inc.

100 tons, post office, Nostrand avenue near Avenue J., Brooklyn, N. Y., to Joseph Gaydica Iron Co.

Tonnage unstated, addition to Pennsylvania railroad shops at Olean, N. Y., to American Bridge Co.

CONTRACTS PENDING

4000 tons, power house for Commonwealth Edison Co., Chicago; pending.

3500 tons, field house for University of Chicago, Chicago; pending.

1000 tons, building for the Buckeye Building

& Loan association, Columbus, O.; bids being compiled.
1000 tons, Garfield high school, Johnstown, Pa.; R. R. Kichen Co., Wheeling, W. Va., general contractor, low bidder.
900 tons, power house at Lewiston, Idaho, for Electric Bond & Share Co., New York; pending.
810 tons, Estuary bridge, Oakland, Calif.; general contract to J. H. Tillman, steel not yet placed.
290 tons, Advance Auto Body Co. plant, Los Angeles; bids being received.
100 tons, bank and office building, Richmond, Calif.; bids being received.
500 tons, building for International Motors Corp., Camden, N. J.; pending.
200 tons, Elks club, Williamsport, Pa.; pending.
500 tons, George Washington hotel, Jacksonville, Fla.; pending.
170 tons, bridge over Siletz river, Lincoln county, Oreg.; bids in Feb. 25.
950 tons, Grönenberg & Leuchag apartment, 127 West Seventy-ninth street, New York; pending.
200 tons, parish, St. Mark's Episcopal church, Brooklyn, N. Y.; pending.
Tonnage unstated, capitol building, Cuban government, Havana, Cuba; bids opened Feb. 20. Forty-seven fabricators, many American, were included in bidders.
Tonnage unstated, freight station for Pennsylvania railroad, Pittsburgh; plans out soon.

Bridge Builder Dies

Phelps Johnson, chairman of the board of directors of the Dominion Bridge Co. and builder of the famous Quebec bridge, died Feb. 20 at the Royal Victoria hotel, Montreal, at the age of 77. Mr. Johnson began his career in an engineering office at Springfield, Mass., and became chief engineer for the Wrought Iron Bridge Co., Canton, O., in 1870. In 1882 he went to the Toronto Bridge Co. and 3 years later to the Dominion company. He took a leading part in the revision of plans following the collapse of part of the steel cantilever bridge across the St. Lawrence river at Quebec and invented the so-called "K" web system upon which the new structure was based. He received the degree of doctor of laws from the McGill univesity and also won high honors from engineering societies.

Sheet Shipments Reach Record In January

Pittsburgh, Feb. 23.—Sheet sales declined in January but production and shipments increased, the National Association of Sheet and Tin Plate Manufacturers reports. January sales amounted to 253,323 tons, against 319,504 tons in December, a decline of 66,181 tons. Production increased 1683 tons, and shipments 39,906 tons, to the highest point on record Following are the details:

	Net tons Jan. 1926	Per cent of capacity	Net tons Dec. 1926	Per cent of capacity
Total sales	253,323	80.4	319,504	101.8
Total production	328,643	104.4	326,960	100.7
Total shipments	333,485	105.9	293,579	93.5
Unfilled tonnage	*609,203	193.5	†677,907	215.9
Finished stock awaiting shipment	110,671	35.1	126,326	38.9
In stock, unsold	55,295	17.6	39,155	12.1

*Feb. 1. †Jan. 1.

The total number of hot mills in the United States now is 711, having a capacity for January of 420,800 net tons. The percentage of the capacity to which the foregoing figures are related is 74.8.

Concrete Bars

Prospective Work Heavy But Awards Continue Small —Prices Remain Steady

ACTIVITY in the concrete bar market is concentrated largely on inquiries. Architects' boards are well supplied with projects and fabricators' estimating departments with plans. Awards are slow in materializing. Improvement in demand is noted in the East. Union terminals work at Cleveland, requiring about 3000 tons is reported awarded.

REINFORCING BAR PRICES, PAGE 528

Chicago, Feb. 23.—Architects have considerable reinforcing bar work on their boards but it is slow in materializing. Warehouses believe that the total of spring work will compare favorable with that of 1925 but will be slower coming out. The Illinois highway department has issued its new specifications permitting use of rail steel bars in highway work. Warehouses are quoting billet reinforcing bars at 2.60c and rail steel at 2.00c.

Boston, Feb. 23.—Reinforcing bar sales from warehouses have shown a marked improvement. Eastern producers, report a dull market. Much work is in prospect in New England. The warehouse price holds at 3.00c, Boston.

New York, Feb. 23.—New business in concrete reinforcing bars has been of small proportions the past week. A large amount of work is being figured and indications point to an active spring. The mill price is firm at 2.00c base Pittsburgh. There are few variations from the 3.15c base delivered price on local warehouse stocks. Youngstown warehouse material continues at 2.50c base Youngstown, equivalent to 2.87½c delivered New York, in carloads.

Pittsburgh, Feb. 23.—Numerous small jobs are up involving concrete bars. No new awards are noted this week. Some attractive tonnages are involved in road work pending, the Colonial Construction Co. being low bidder on several projects. The concrete bar mill price still is 2.00c, Pittsburgh.

Cleveland, Feb. 23.—Reported placement of bridgework in connection with union terminal construction features the local concrete bar market. Three projects requiring more than 3000 tons are understood to have gone to an independent mill. Inquiries are small and awards generally under 50 tons.

New billet bar prices are steady at 2.19c to 2.30c Cleveland, although 1.90c Pittsburgh is rumored as the price on one important tonnage. Rail steel bars are unchanged at 1.80c to 1.90c, mill.

Awards Compared

	Tons
Awards this week	3,218
Awards last week	4,742
Awards two weeks ago	4,344
Awards this week in 1925	5,085
Average weekly awards, Jan.	4,342
Average weekly awards, 1926	4,369
Total awards to date, 1925	51,805
Total awards to date, 1926	33,723

CONTRACTS PLACED

2000 tons, footings for Cuyahoga valley bridge, union terminals project, Cleveland, understood awarded independent mill.
350 tons, Columbus road bridge, union terminals project, Cleveland, understood awarded independent mill.
300 tons, water works for Racine, Wis., to C. A. P. Turner Co.
268 tons, Women's club, San Francisco, to Truscon Steel Co.
200 tons, new East Side High School at Terre Haute, Ind., to Laclede Steel Co.
90 to 100 tons, Seafair Development Co. building, Cedar road and Fairmount boulevard, Cleveland, reported awarded Paterson-Leitch Co., rail steel.
Tonnage unstated, reinforcing for Eagle street bridge, union terminals project, Cleveland, understood awarded independent mill.

CONTRACTS PENDING

1000 tons, Pennsylvania state highway road building projects; bids being taken.
175 tons, incinerator at Buffalo; Hiler Engineering & Construction Co., contractors.
150 tons, filtration plant, Dunkirk, N. Y.
250 tons, building for the H. J. Heinz Co., Pittsburgh; bids close Feb. 27.
200 tons, building for the Press Publishing Co., Pittsburgh; W. T. Grange Construction Co., general contractor.
100 tons, building for the West Penn hospital, Pittsburgh; D. T. Riffle general contractor.
100 tons, Walnut Hills Baptist church, Cincinanti; bids in.
100 tons, Norwood Masonic temple, Norwood, O.; pending.
Tonnage unstated, capitol buliding, Cuban government, Havana, Cuba; bids opened Feb. 20. Forty-seven fabricators, many American, were bidding.
Tonnage unstated, freight station for Pennsylvania railroad, Sixteenth street, Pittsburgh; plans out soon.

Brake Shoe Net Gains

The annual report of the American Brake Shoe Foundry Co. shows net profits of $2,786,607 after charges, depreciation and federal taxes. In 1924 the company reported net of $2,454,904. Upon payment of all dividends $1,288,712 was carried to surplus, against $985,994 in 1924. Joseph B. Terbell, chairman, in his report to stockholders, said the company contemplates the erection of new buildings this year and will expend approximately $1,000,000 for that purpose.

Rails, Cars

Seaboard Places 3400 Cars—Inquiries Better—Track Material Buying Fair

SEABOARD Air Line closed on 3400 freight cars this week, dominating the railroad equipment market. Other awards are light. Inquiries include an additional 1000 for Northern Pacific, 2500 for the Southern and 2000 for the Union Pacific. Other inquiries aggregate about 1000. Buyers are pushing mills for rail deliveries at Chicago. Track material demand is good.

RAILROAD TRACK MATERIAL PRICES, PAGE 528

New York, Feb. 23.—Featuring the eastern car market is the award of 3400 freight cars by the Seaboard Air Line. Other awards aggregate a light volume. Inquiry has improved with 2500 cars for the Southern railway outstanding. Locomotive buying is light. Inquiry is featured by 113 for the Southern and 15 for Rock Island.

Chicago, Feb. 23.—Railroads have been pressing so hard for rails one Chicago district maker has enlarged its rail mill schedule. Track fastenings are wanted as badly. The initial rail buying movement seems to have spent itself following the placement of 33,000 tons by the Rock Island with the two Chicago makers. In miscellaneous lots, the leading maker took 12,000 tons of rails last week. One western road placed 4000 tons of angle bars. Pressed steel wheel orders are liberal. Western mills have not felt any impetus in light rail business as a result of the coal strike settlement, though Pittsburgh makers have.

The Santa Fe railroad has inquired for 500 hopper cars. All of the Seaboard Air Line order will be built in eastern shops.

Pittsburgh, Feb. 23.—Scattered orders for light rails have drifted in to makers from some sections of the anthracite coal mining district. Total tonnage is disappointing. Specifications against contracts are fairly frequent from large users. The price still is $36 on billet-rolled rails, with $35 available on rail-steel rails.

Track accessory makers have good backlogs for practically all of the first half. The quotation on standard spikes is firm at 2.80c and the price on small spikes is growing stronger, 3.00c being available only in exceptional cases where large tonnages are involved, 3.10c being the more common market on small lots. Tie plates are unchanged at 2.35c.

ORDERS PLACED

Seaboard Air Line, 3400 cars, awarded as follows: 1000 box cars and 800 gondola cars to the Pressed Steel Car Co.; 800 gondola cars to the Standard Steel Car Co., and 800 gondola cars to the American Car & Foundry Co.

General Refractories Co., two flat cars, to the American Car & Foundry Co.

Southern railway, 55 passenger cars to the Pullman Car & Mfg. Corp.

Atchison, Topeka & Santa Fe, 23 miscellaneous coaches, to the Pullman Car & Mfg. Corp.

Northwestern Refrigerator Line, 500 refrigerators, to American Car & Foundry Co.

Consolidation Coal Co., 900 mine cars, to Bethlehem Steel Co.

New England Fuel & Transportation Co., 200 mine cars, to Watt Mine Car Co.

Soo Line, 100 general service cars, to Pullman Car & Mfg. Corp.

Southern railway, 500 hopper cars, rebuilding, to Mt. Vernon Car Mfg. Co., in addition to 500 gondola repairs awarded last week.

Swift & Co., 300 underframes, to Bettendorf Co.

LOCOMOTIVE ORDERS PLACED

Hainsport Mining & Transfer Co., one switch engine, to the Baldwin Locomotive Works.

Pacific Portland Cement Co., one locomotive, to the Baldwin Locomotive Works.

Canadian National railways, 24 locomotives, to American Locomotive Co.

ORDERS PENDING

Erie railroad, 23 underframes; pending.

Illinois Central, 200 automobile or furniture cars; bids asked.

Northern Pacific, 1000 box cars, bids asked; this railroad as previously noted is also in the market for 1000 automobile cars.

Southern railway, 2500 freight cars, including 1000 box cars, 1000 hopper cars and 250 ballast cars; inquiry out.

Colorado & Southern, 100 ballast cars; pending.

Chicago, Burlington & Quincy, 500 hopper cars; pending.

Pere Marquette, 350 automobile box cars; bids asked.

Missouri-Pacific, 60 tank cars; pending.

Sinclair Refining Co., 2 coke cars; pending.

Union Pacific, 2000 freight 47 miscellaneous cars and three freight locomotives, as follows: 1000 convertible ballast cars, 1000 automobile cars, two baggage mail cars, fifteen 75-foot coaches, ten 70-foot baggage cars, ten 83-foot observation cars, five 83-foot dining cars, and five 70-foot pasenger service horse cars; bids about to be asked.

LOCOMOTIVE ORDERS PENDING

Southern railway, 113 locomotives; pending.

Rock Island, 15 locomotives; pending.

Spokane, Portland & Seattle railway, two locomotives; bids in March 16.

In May the First Methodist Episcopal church of Gary, Ind., will dedicate its new downtown edifice, costing nearly $1,000,000. The United States Steel Corp. donated the site and contributed heavily to the building fund.

Wire

Better Demand and Steady Price Marks the Situation—Stocks Are Low

IMPROVEMENT is seen in specifications and buying is also on a larger scale. Expiring contracts with jobbers are being renewed at the full price. Jobbers are buying freely but stocks in general are being kept low, most buying being in small lots for immediate needs. Second quarter covering has not been done to any extent. Prices show no weakness.

WIRE PRICES, PAGE 528

Chicago, Feb. 23.—A preponderance of wire and nail shipments is going to the manufacturing trade. Jobbers appear to be buying with more caution. The automobile trade for several weeks has improved its specifications. Makers claim that 2.55c, Chicago or western mill, for plain wire and 2.70c for wire nails are not being shaded, but mill capacity is being far from satisfied. Wire mill operations in this district will not average over 60 per cent at this time. Nothing official is heard yet of second quarter prices, but no changes are expected.

Boston, Feb. 23.—Jobbers continue to lay in stocks of nails and some wire specialties. Wire producers, however, complain of a drop in orders for plain wire, the price of which nevertheless holds firm at 2.65c, Worcester.

New York, Feb. 23.—Demand for wire and wire products has improved steadily and now is at the best rate in some time. It is estimated the industry now is operating at or close to 70 per cent of capacity, with wire somewhat better than nails. Cutting of the nail price, which had been prevalent, seems to have disappeared and no exceptions to the 2.65c base Pittsburgh price now are reported. The wire market is firm at 2.50c, base Pitsburgh.

Pittsburgh, Feb. 23.—Additional improvement is seen by wire products makers as further specifications against contracts are received. Some 60-day nail contracts with jobbers are expiring and are being renewed at full 2.65c base. Manufacturers utilizing various forms of plain wire are taking out more material against their first quarter contracts but have not started to renew for second quarter. The 2.50c base price, however, shows no weakness. Stocks are not large, buyers sticking to their policy of keeping low inventories. Wire mill operations are maintained on an average basis of approximately 70 per cent.

Nonferrous Metals

Strength Is Being Shown in Zinc and Tin But Other Metals Are Quiet—Big Products Production Is Market Feature

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Straits Tin, N. Y.	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Feb. 17	14.32½	14.45	13.62½	64.25	9.15	9.00	7.52½	27.00	22.00	35.00
Feb. 18	14.30	14.37½	13.62½	64.50	9.15	9.00	7.45	27.00	21.87½	35.00
Feb. 19	14.25	14.37½	13.62½	64.37½	9.15	8.97½	7.70	27.00	21.75	35.00
Feb. 22	Holiday									
Feb. 23	14.30	14.40	13.62½	65.00	9.15	8.85	7.75	27.00	21.50	35.00

NEW YORK, Feb. 23.—Prices of zinc and tin have been distinctly strong in the past few days, while other metals have been in rather indifferent markets. Buyers of all metals continue unusually cautious, but producers are showing confidence. Buying in nearly all lines has remained comparatively quiet, but every now and then spots of activity occur. Meanwhile, shipments on old orders continue large. An outstanding feature of the nonferrous metal situation is the high rate at which brass and copper rolling mills are operating.

Copper—After the market reached 14.37½c delivered (14.50c Middle West) recently, the market became unusually quiet with the result that in a few days some metal became available at 14.25c. Most producers resisted the easiness, especially as users did not appear much interested at any price. Producers recently booked fairly good business, mostly for March, and for that reason are able to hold out of the market for a while. A few small lots have been offered in the outside market on refinery basis down close to 14.00c, but this metal is unimportant. In the past day or two the tone of the market has been firmer.

Zinc—The market on this metal turned abruptly around a few days ago as dealers came in when March sold down to 7.40c, East St. Louis. It is reported also some smelters have been buying from others, and few of the smelters have been ready sellers in the past few days. The result was that the market appeared to have recovered to 7.75c by Saturday although actual sales to users were not known to have been closed at such a figure at that time. Users of zinc have done little in the market for a number of weeks, and smelter stocks have increased. But it is now believed users will have to come into the market actively.

Tin—Supplies are in a tight situation with the result prices have been strong the past few days. Users are interested mostly in early deliveries, with the result the latter has gone up much more than futures. Use continues unusually large.

Lead—This metal has been comparatively quiet in the past few days and prices have been mostly steady, with the open market at New York, the same as the American Smelting & Refining Co.'s contracting price. On East St. Louis basis some smelters still are selling a little metal at 9.00c, but others have cut to 8.85c.

Aluminum—Prices on new metal are unchanged, while on secondary the situation looks a little firmer. Buying of the latter is picking up, so that this fact with good specifications for new metal give the market a tone of firmness.

Scrap—Not much change in prices is reported and buying lately has been rather spotty.

By-Product Makes Record

Washington, Feb. 23.—By-product coke production during January was the highest on record for any one month. The output for the month was 3,804,000 tons against 3,760,000 tons in December, representing an increase of 44,000 tons, or 1.1 per cent. By-product coke plants operated at about 92 per cent of capacity during January, 74 by-product plants out of 80 being active. Beehive production of 1,381,000 tons compares with 1,307,000 tons in December, an increase of 74,000 tons, or 5.7 per cent.

Total production of beehive and by-product coke came to 5,185,000 tons in January against 5,067,000 tons the preceding month. This figure compares with a monthly average of 4,225,000 tons during 1925.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.12½
Copper, hot rolled	22.75
Zinc, ga. 9 to 17	12.00
Lead full sheets (cut ¼c more)	13.00 to 13.50
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	23.75
Copper	24.50
RODS	
High brass (round ⅝ to 2½-inch)	16.87½
Naval brass	19.62½
WIRE	
Copper	16.25 to 16.50
High brass	19.62½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.00
Chicago	9.75
Cleveland	9.00 to 9.25
HEAVY YELLOW BRASS	
New York	7.25
Chicago	8.25
Cleveland	6.50 to 6.75
ZINC	
New York	5.00
Cleveland	4.50 to 4.75
HEAVY COPPER AND WIRE	
New York	12.00
Chicago	11.75
Cleveland	11.25 to 11.50
RED BRASS BORINGS	
New York	8.25
YELLOW BRASS TUBING	
Cleveland	7.00 to 7.25
LIGHT COPPER	
New York	9.50
Chicago	10.00
Cleveland	9.50 to 9.75
LIGHT BRASS	
Chicago	7.50
Cleveland	6.00 to 6.25
ALUMINUM	
Borings, Cleveland	14.00 to 15.00
Cast	18.00 to 19.00
Clippings	21.00 to 22.00

Secondary Metals

Remelt aluminum No. 12	24.00 to 25.00
Brass ingot	12.25

Coke By-Products

Demand for Distillates Is Brisk—Sulphate Quiet—Prices Steady

New York, Feb. 23.—With steadiness dominating light oil distillates, 90 per cent benzol is quoted at 24 cents works in tanks and 29 cents in drums: pure benzol 23 cents works in tanks and 28 cents in drums; solvent naphtha and toluol 35 cents in tanks and 40 cents in drums, and commercial xylol 36 cents in tanks and 41 cents in drums.

Demand continues brisk, with lacquer manufacturers and rubber interests the most active. Good buying also prevails in naphthalene, chiefly for spring shipment. Prices on naphthalene are unchanged at 7 cents, works, for flakes in carload lots and 8 cents for balls. On smaller quantities the market is ½ to 1 cent higher. Phenol is quoted at 22 cents works, with trading featureless.

Domestic and export inquiries for sulphate of ammonia are small. Quotations on domestic shipments are around $2.70 to $2.75, delivered, and on export $2.70 to $2.75, port, in double bags.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.23	.....
90 per cent benzol	0.24	.....
Toluol	0.35	.....
Solvent naphtha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22
Per Pound at Producers' Plants		
Naphthalene flakes	0.07	
Naphthalene balls	0.08	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.72½	.....

Demand Gains on Coast

Large Tonnages Placed and Pending Give Market Active Appearance—Prices Are Steady

SAN FRANCISCO, Feb. 18.—(*By Air Mail*)—During the past week several large tonnages of structural shape and plate awards were placed and a number of new projects have come up for figures. Among these were 4500 tons for the Hunter Dulin building in San Francisco, taken by the United States Products Co. and 2300 tons for a pipe line at Portland, Oreg., placed with the Willamette Iron & Steel Works. Trading in other iron and steel products has been confined to small lots. Prices generally are firm with indications pointing to advances within the near future.

Pig Iron and Coke

The market for pig iron and coke remains quiet, small spot lots comprising the bulk of the business booked. Current inquiries include unimportant tonnages for immediate shipment. The Southern Pacific Co. will open bids Feb. 23 for 350 tons of foundry coke. Prices remain practically unchanged from those quoted last week and are as follows:

Coast Pig Iron Prices

Columbia basic	$27.00 to 28.00
Columbia, No. 2 Fdry., San Francisco and Los Angeles	27.00 to 28.00
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del. S. F.	25.50
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del L. A.	26.00
*Dutch	24.00
*Indian iron	24.25
*Belgian	24.00
German	24.00
*English (2.75 to 3.75 sil.)	25.00 to 26.00

*C.I.F. duty paid.

Bars, Plates and Shapes

Firmer prices in out-of-stock prices on reinforcing bars are noted at Los Angeles and San Francisco. In less than carload lots 3.20c represents the general run although this price has been shaded in several instances. In carload lots the price is fairly well established at 2.75c. Awards this week included only one lot of over 100 tons. The Truscon Steel Co. took 268 tons for the Women's club in San Francisco. Several large tonnages are up for figures, among which is 700 tons for shipment to the Hawaiian Islands.

Plate awards aggregated over 2500 tons, the largest project involving 2300 tons for lock-bar pipe for Portland, Oreg., booked by the Willamette Iron & Steel Works. The San Joaquin Light & Power Co., Fresno, Calif., placed an additional 200 tons for a penstock with Ferrum Co. a German concern, who recently booked 1500 tons for a penstock for the same company. New inquiries include 3000 tons for pipe line at Medford, Oreg., bids on which will be opened March 9 and 1500 tons for a pipe line at San Rafael, Calif., which will come up for figures March 16. Pending business exceeds 15,000 tons. Bids will be opened March 22 for a pipe line at San Diego calling for steel or cast iron pipe. Over 5000 tons of plates are involved. Prices remain firm at 2.30c c.i.f. coast ports.

The past week has been one of the most active this year in the structural market, over 6600 tons being booked. Included among the larger awards was 4500 tons for the Hunter Dulin building in San Francisco, 850 tons for the Grant building addition in San Francisco, placed with the Moore Dry Dock Co. and 700 tons for the Main Exchange Telephone building in Pasadena, Calif., booked by the Union Iron works of Los Angeles. New inquiries of the week call for 310 tons for the Estuary bridge in Oakland and 290 tons for a building for the Advance Auto Body Co. in Los Angeles. Pending business involves over 6800 tons. Prices, as far as can be ascertained are firm at 2.35c c.i.f. as a minimum.

Other Finished Material

Only one award of importance was reported this week in the cast iron pipe market. The American Cast Iron Pipe Co. took 100 tons for Eureka, Calif. Pending business exceeds 26,000 tons. One of the largest inquiries in the history of the Pacific coast is just out for figures this week. A pipe line for San Diego, Calif., on which bids are being taken for either steel pipe or cast iron pipe, calls for 25,000 tons approximately. Prices remain unchanged at around $50 base delivered. The City of Portland is planning the purchase of nearly 600 tons.

Tubular goods are in fair demand, standard pipe being more active than in the case of oil country goods. Los Angeles placed 100 tons of ½-inch to 1-inch galvanized pipe with the Associated Supply Co. The Associated Oil Co. is inquiring for 210 tons of 8-inch pipe.

While 2.50c base Pittsburgh continues more or less general on cold rolled material, 2.40c has ben quoted recently in several instances. Business offered involves small lots, seldom in excess of a carload.

Second Quarter Pig Iron Purchases Delayed

(*Continued from Page* 529)

cally untested. Inquiries from various districts total around 5000 tons. The McKinney Steel Co. has dropped another furnace from its active list at Cleveland; three out of the four now being idle.

Cincinnati, Feb. 23.—With large consumers disinterested, the pig iron market is quiet. Sales and inquiries in the past week were small. Northern iron still is quoted at $21, Ironton, while southern iron ranges from $21.50 to $23, Birmingham. The latter quotation aplies to the product of the Tennessee furnace.

Chicago, Feb. 23.—The market for northern pig iron continues quiet, but sellers are more anxious over second quarter tonnage, and melters are nearer the time when they must decide on their second quarter buying policy. Melters' distrust of $23, Chicago furnace, for No. 2 foundry and malleable is growing, and efforts have been made to break the market. The technical position of the market is weaker and a bearish under-current on prices is more pronounced. One seller now believes the alternative to a reduction now is spot buying throughout the second quarter. At least one inquiry for 3000 tons is reported in abeyance, pending determination of the price trend. Some melters are augmenting their first quarter needs, but the majority find the purchases for first quarter are sufficient. Six out of ten merchant stacks are active. Charcoal iron sales are fair, with one maker sold up for the first half. The price is unchanged at $29.04, Chicago. Silveries are quiet, but firmer.

St. Louis, Feb. 22.—Interest in pig iron has increased and sales are the largest in a number of weeks, mainly for second quarter. Approximately 40,000 tons was closed in the past week, three-fourths of which was basic iron for steelmakers in this district. In foundry iron the largest transaction was 4000 tons, sold to a local car builder by the St. Louis Coke & Iron Corp. This same interest sold 750 tons to stovemakers in Quincy, 200 tons to a Kansas equipment maker, 200 tons to an Illinois stove manufacturer and 150 tons to a western Missouri specialty maker. Inquiry included 750 to 800 tons for a Peoria melter, 600 tons for the American Stove Co. for its Indianapolis plant and 300 tons for an Illinois job foundry. Buying was stimulated by the entrance into this district of a Chicago producer with a price of $21, furnace. Other makers competed. The result has been easier prices all around.

Birmingham, Ala., Feb. 22.—Tonnages of pig iron sold for second quarter are increasing and quotations are firm at $22, base. Iron for spot or early delivery is selling at $23. Large melters in this district are figuring on additional requirements. Production is steady.

To Build Electric Plant

St. Louis, Feb. 22.—The Century Electric Co. has announced the acquisition of a new plant site covering 400,000 square feet in the Mill Creek industrial district at a cost of $500,000. Erection of factories and improvements on the property, which will begin in the near future, will cost approximately $2,500,000.

British Strike Fears Allayed

Furnaces Booking Orders Beyond Date of Expiration of Government's Coal Agreement —Americans Still Buying Large Amounts of Special Grades of Iron—Tin Plate Prices Softening, Despite Control of Output

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Feb. 23.—(*By Cable*)—More confidence in a renewal of the coal agreement in May is reflected in the iron and steel industry. Blast furnace companies in the Barrow district that heretofore have refrained from committing themselves beyond May 1 now are closing contracts for delivery of iron in that month. American buyers continue important factors in the market for special grades of iron made in the Barrow district. Pig iron for prompt delivery is scarce and prices are firm. Dorman, Long & Co. have relighted a furnace to obtain more iron for their steelworks.

More orders for shipbuilding steel are noted, and British yards have taken orders for two 10,000-ton cruisers. Prices quoted by continental mills on finished steel are strongly competitive, but fewer continental mills on the Continent are making efforts to obtain semi-finished steel tonnage.

The market for tin plate is sagging, despite the new syndicate regulations controlling output. India is buying large amounts of galvanized sheets.

Business in France is being checked by the anxiety of iron and steel interests over the outcome of pending taxation problems. Coke prices have been advanced 10 francs for March. The French foundries' syndicate has raised the March pig iron quota available to its members from 45,000 to 60,000 tons.

European Steel Market Shows Confidence

LONDON, Feb. 12.—(*European Staff Service*)—Iron and steel export markets have been somewhat quiet of late but the underlying tone is fairly steady. A greater feeling of confidence is prevailing in Great Britain and recent advances in export prices of pig iron have been maintained. Continental prices are firmer. Generally speaking, buyers appear to be under the impression that prices have reached bottom. On the other hand, there is not much expectation of values soaring soon. As a result there is less of hand-to-mouth business, although transactions are rarely made beyond three months ahead.

As far as Great Britain is concerned, there is little doing in export markets for foundry and basic pig iron but the hematite department is more active. No. 3 Middlesbrough foundry pig iron has been maintained at £3 10s ($17) per ton f. o. b. for export. This price, which has been quoted since the end of January, had not been reached since August, 1925. West Coast hematite, phosphorus 0.02 to 0.05, is £4 4s ($20.40). Even in Scotland the demand for pig iron has expanded and during the past two weeks about 2000 tons have been exported.. Britain is practically free from continental competition.

More activity is shown in continental markets, especially in Luxemburg, France and Belgium. Japan has bought a fair tonnage of merchant bars in anticipation of the raising of Japanese import duties. Luxemburg is enjoying a fair amount of trade since the pressure of French mills has given way. Rails and beams have been sold to America, sheet bars to British tinplate makers, and various products to China, Germany, Czecho-

(*Concluded on Page* 556)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, February 22	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d			Francs		Francs	£ s d	
Foundry No. 3, Silicon 2.50-3.00	$17.05	3 10 0*	$14.82	415	$15.47	340	$17.05	3 10 0
Basic	16.31	3 7 0	15.35	430	15.47	340	15.10	3 2 0
Basic-bessemer	18.63	3 16 6†	14.46	405	14.56	320	17.05	3 10 0
Hematite, Phosphorus 0.02-0.05	20.45	4 4 0	19.81	555	.....	...	18.26	3 15 0
SEMIFINISHED STEEL								
Billets	$26.79	5 10 0	$21.06	590	$21.84	480	$24.35	5 0 0
Wire rods	43.83	9 0 0	27.85	780	28.89	635	28.00	5 15 0
FINISHED STEEL								
Standard rails	$35.31	7 5 0	$24.63	690	$27.30	600	$31.66	6 10 0
Merchant bars	1.49c	6 17 6	1.12c	700	1.17c	570	1.18c	5 7 0
Structural shapes	1.33c	6 2 6	1.03c	645	1.07c	520	1.09c	4 19 0
Plates, ship, bridge and tank	1.52c	7 0 0	1.24c	775	1.22c	590	1.32c	6 0 0
Sheets, black, 24 gage	2.23c	10 5 0	2.16c	1,350	2.27c	1,100	2.64c	12 0 0
Sheets, galvanized, 24 gage, corrugated	3.51c	16 2 6	3.20c	2,000	4.53c	2,200	3.74c	17 0 0
Bands and strips	2.23c	10 5 0	1.38c	860	1.50c	730	1.54c	7 0 0
Plain wire, base	2 39c	11 0 0	1.86c	1,160	1.65c	800	1.71c	7 15 0
Galvanized wire, base	3.04c	14 0 0	2.50c	1,560	2.27c	1,100	2.04c	9 5 0
Wire nails, base	3.15c	14 10 0	2.08c	1,300	1.75c	850	1.93c	8 15 0
Tin plate, base box 108 pounds	$ 4.75	0 19 6	.....	...	.....	...	$ 6.57	1 7 0
Domestic Prices at Works or Furnace—Last Reported								Marks
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$17.05	3 10 0	$14.10	395(2)	$15.02	330	$19.55	85
Basic pig iron	16.31	3 7 0	13.92	390(1)	14.56	320	20.24	88
Furnace coke	4.26	0 15 6	5.50	154	5.69	125	5.06	22
Billets	26.79	5 10 0	19.64	550	21.84	480	27.37	119
Standard rails	1.63c	7 10 0	1.08c	675	1.23c	595	1.48c	142
Merchant bars	1.49c	6 17 6	1.08c	675	1.22c	590	1.34c	128
Shapes	1.44c	6 12 6	1.03c	645	1.18c	575	1.37c	131
Plates, ship, bridge and tank	1.58c	7 5 0	1.24c	775	1.33c	645	1.48c	142
Sheets, black, 24 gage	2.34c	10 15 0	2.16c	1,350	2.27c	1,100	2.14c	205
Sheets, galvanized 24 gage, corrugated	3.56c	16 7 6	3.12c	1,950	4.64c	2,250	3.96c	380
Plain wire	2.39c	11 0 0	1.88c	1,175	1.65c	800	1.85c	177
Bands and Strips	2.28c	10 10 0	1.35c	845	1.57c	760	1.59c	152

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 16s 0d ($3.90) f. o. b. Ferromanganese £15 5s 0d ($74.27) f. o. b. German ferromanganese £14 10s 0d ($70 62) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

Better Sales Late in Month Bring Business of February Close to January Level—Scarcity of Used Equipment

SALES of machine tools and equipment have shown material improvement during the last few days and indications are that February business will closely approximate, if not surpass, that of January. The early part of the month was relatively quiet. Industrial buying continues at a steady pace with single tools predominating sales, but railroad buying again appears promising. No large inquiries are pending, however. Among roads in the market are New York Central, Baltimore & Ohio, Pennsylvania and Rock Island. Inquiries from all sources are heavy, predicting good sales for March. Used equipment is difficult to obtain, so strong is the demand. Dealers are unable to supply needs of its customers, let alone carry stocks.

New York, Feb. 23.—Machine tool buying is fairly well sustained, with some sellers of the opinion that February business will surpass that of January, which had shown a decline from the preceding month. With few exceptions, however, current orders are confined to single tools. Included are a journal truing and axle lathe for the Big Four railroad, 1500-pound steam hammer for the Monongahela railway, Brownsville, Pa., both orders going to Niles-Bement-Pond Co.; and a 30-inch cylinder grinder for Davis Tool & Engineering Co., Detroit, and another to Frederick Coleman Co., Detroit, both going to Pratt & Whitney Co. New York Central continues to bring out inquiries, the latest calling for four 24-inch vertical drills, small engine lathe and two 5-foot radial drills. Baltimore & Ohio is asking bids on a 36-inch radial drill, a grinder and an engine lathe. Miscellaneous railroad buying includes two turret lathes for Altoona, Pa., shops of Pennsylvania railroad; and two lathes for Louisville & Nashville; a heavy duty face grinder for New York Central; and a heavy duty gap lathe for Delaware, Lackawanna & Western, the latter three orders going to Manning, Maxwell & Moore Inc. Central of Georgia has added a turret lathe to its pending list. Poole Engineering Co., Baltimore; International Motors Co., Allentown, Pa.; and Gamon Meter Co., Newark, N. J., have all been buyers of turret lathes during the past week. One seller of this equipment reports the best month since 1919.

Boston, Feb. 23.—Sales of used tools increased materially at Boston during the past week. An eastern Massachusetts manufacturer liquidating surplus used tools sold 30 odd in private sales. Boston dealers report additional sales of from 15 to 20 used tools. A Rhode Island manufacturer has issued a list of five tools and is understood to be considering used equipment. New tool sales of the week about equaled the average of the month, a rate somewhat lower than the January average. A Springfield, Mass., manufacturer is in the market for several tools for a plant addition under construction. A Connecticut chain manufacturer is in the market for from five to 10 tools. Tool manufacturers within the New England district report receipt of orders equal to production, and operation is continuing at an average of about 80 per cent capacity. Prices are unchanged.

Pittsburgh, Feb. 23.—Additional buying of machine tools on the part of the Westinghouse Electric & Mfg. Co. is the feature of this week's equipment market. Its recent crane order was for four instead of two, as noted last week. The Brown & Zortman Machinery Co. was given an order for six or seven upright drilling machines and a toggle drawing press, while a slotter and punch press went to W. K. Stamets. Several other items were distributed elsewhere. A number of inquiries are being circulated among sellers and apparently manufacturers are mapping out their spring campaigns and are about to arrange appropriations. Pennsylvania railroad wants two or three items and a fairly large number of inquiries are current involving one machine apiece. One important dealer here sold a number of woodworking machines this week, including two saws and a surfacing machine for planing large timbers.

Chicago, Feb. 23.—Most machinery sellers have experienced a quiet week, but there is no dearth of inquiry, especially from the western railroads. Those carriers not yet having put out lists are expected to do so shortly. Rock Island has supplemented its previous inquiry by a 36-inch planer and a 53-inch vertical boring mill. Nash Motors Co., Kenosha, Wis., has placed a 36-inch planer and is expected to issue a lengthy list for its Kenosha plant this week. It is assumed that the Roxana Petroleum Corp., St. Louis, will require machine tool equipment for its proposed refinery at East Chicago and Hammond, Ind.

Cincinnati, Feb. 23.—While inquiries for tools are more numerous, few sales of consequence were reported by manufacturers and sellers in this district the past week. Orders for the most part involved single installations. Railroads are manifesting more interest, but few large lists are pending. Plant operations have increased slightly since the beginning of the year and with the larger volume of inquiries manufacturers are more optimistic regarding the future. Boye & Emmes Tool Co., whose plant recently was destroyed by fire, is rebuilding and shortly will be in the market for a number of tools. Dealers in used machinery report business slow.

Cleveland, Feb. 23.—Business in the Cleveland territory appears the best in some time. Single tools predominate sales, with all industries concerned in buying. Recently, machine tool builders have been purchasing new equipment. In most cases, February sales have been considerably heavier than those of January with the average close to the average for entire year 1925. Manufacturers are operating at a high rate and report a heavy volume of inquiry. Used tools are in unusually good demand and dealers are turning away business, being unable to purchase sufficient equipment to meet demands. Stocks of boring mills, lathes, milling machines and several other machines are depleted and as a result price levels are somewhat higher.

CRANE ORDERS PLACED

Ten cranes, including nine handpower overhead cranes ranging from 5 to 15 tons capacity, and one 15-ton electric overhead crane, for Manitoba Pulp & Paper Co., Fort Alexandria, Manitoba, Can., awarded through George F. Hardy Co., New York. Handpower cranes went to Morris Crane & Hoist Co., and electric crane to Dominion Bridge Co.

Four 3-ton cranes, including two single hook and two double hook, for Westinghouse Electric & Mfg. Co., St. Louis, to Northern Engineering Works, instead of two as noted in last week's IRON TRADE REVIEW.

Among single orders were: 3-ton crane for United States Aluminum Co., Cleveland, to Northern Engineering Works; 10-ton crawler crane for Hainsport Mining & Transit Co., Philadelphia, for operation near Trenton, N. J., to Brown Hoisting Machinery Co.; 1-ton handpower crane for Honolulu Iron Works, New York, to Roeper Crane & Hoist Co., through A. D. Granger & Co.; 2-ton electric hoist to Naniwa Boyeki Shokai for installation in Osaka Arsenal, Japan, to American Engineering Co.; 20-ton used locomotive crane for Luria Bros. Inc., Lebanon, Pa., to Philip T. King; 3-ton special locomotive crane for Savannah Creosoting Co., Savannah, Ga., for installation at Norfolk, Vt., to Industrial Works; 10-ton electric crane for Stanley Works, New Britain, Conn., to Northern Engineering Works; tramrail equipment for Buffalo plant of American Radiator Co., to Cleveland Crane & Engineering Co.

CRANE ORDERS PENDING

35-ton electric crane for New Egnland Power Construction Co., Worcester, Mass., for a hydroelectric development, revised from a 45-ton crane.

Rail Steel

Admitted for Illinois Highway Work Along with Billet Reinforcement

Chicago, Feb. 23.—Rail steel is placed formally on a parity with billet steel for reinforcing concrete roads and bridges in Illinois, in revised specifications just issued by the Illinois highway department. Rail steel, it is stated, must conform to the standard specifications for rail steel concrete reinforcement bars of the American Society for Testing Materials as given in the society's standards for 1924, serial designation A16-14, page 145, with subsequent revisions. Billet steel bars have had to conform also to the society's standards.

The additional material in the state specifications relating to rail steel is as follows:

Manufacture—The bars shall be rolled from standard section Tee rails.

Tension tests—The bars shall conform to the following minimum requirements as to tensile properties:

Properties considered	Plain bars	Deformed bars
Tensile strength, pounds per square inch	80,000	80,000
Yield point, pounds per square inch	50,000	50,000
Elongation in 8 inches, per cent	1,200,000 / tensile strength	1,000,000 / tensile strength

The yield point shall be determined by the drop of the beam on the testing machine.

Modifications in elongation—For bars over ¾-inch in thickness or diameter, a deduction from the percentages of elongation specified above of 0.25 per cent shall be made for each increase of 1/32 inch of the specified thickness or diameter above ¾ inch. For bars under 7/16 inch in thickness or diameter, a deduction from the percentages of elongation specified above of 0.5 per cent shall be made for each decrease of 1/32 inch of the specified thickness or diameter below 7/16 inch.

Bend tests—The test specimen shall bend cold around a pin without cracking on the outside of the bent portion, as follows:

Bend Test Requirements

Thickness or diameter of bar	Plain bars	Deformed bars
Under ¾-inch	180 degrees d = 3t	180 degrees d = 4t
¾-inch or over	90 degrees	90 degrees

In the above table:

d = 3t d = 4t

d = the diameter of pin about which the specimen is bent.

t = the thickness or diameter of the specimen.

Any steel injured in bending or handling shall be rejected.

Test specimens.—Tension and bend test specimens shall be taken from the finished bars, and shall be of the full thickness or diameter of bars as rolled; except that the specimens for deformed bars may be machined for a length of at least nine inches, if deemed necessary by the manufacturer to obtain uniform cross-section.

Number of tests—One tension and one bend test shall be made from each lot of ten tons or less of each size of bar milled from rails varying not more than ten pounds per yeard in mechanical weight.

If any test specimen shows defective machining or develops flaws it may be discarded and another specimen substituted.

If the percentage of elongation of any tension test specimen is less than that specified in the section referring to tension tests, and any part of the fracture is outside the middle third of the gage length, as indicated by scribe scratches marked on the specimen before testing, a retest shall be allowed.

Columbia Steel To Build Strip-Sheet Mills

Pittsburgh, Feb. 23.—A new company, the Columbia Steel Co., with headquarters in the Standard Life building, to be incorporated March 1 under the laws of Pennsylvania, has been formed from the merger of the Forged Steel Wheel Co., Butler, Pa., a subsidiary of the Standard Steel Car Co., and the Columbia Steel Co., Elyria, O. The latter company was acquired through 100 per cent stock control by the Forged Steel Wheel Co. in January, as noted in IRON TRADE REVIEW of Jan. 14.

The new corporation plans the expenditure of a large sum of money, estimated at several million dollars, in the construction of a 30-inch hot and a 30-inch cold strip mill, with considerable auxiliary equipment, at Butler.

Barton Shover, Oliver building, is the engineer for the extensions. The plans provide for the manufacture of the widest steel ever made on a strip mill. Through a continuous annealing process, a product given the name of strip-sheet will be made 30 inches wide, equivalent to the grade of sheets fit for the manufacture of automobiles. The capacity of the new mills will be 20,000 tons a month.

At the Butler plant the Forged Steel Wheel Co. already has 10 basic open-hearth furnaces of 70-ton capacity, a slabbing mill, an 18-inch merchant mill, machine shops, a dolomite sintering plant and a wheel finishing plant. It is possible some of this latter equipment will be sold. This company began manufacturing forged wheels for railroads in 1912. The Columbia Steel Co. of Elyria has been producing steel since 1898, and has specialized in high-grade cold strip steel.

The active officers of the new company will be H. M. Naugle, president; A. J. Townsend, vice president and general manager, and K. R. Jenson, who were the leading officials of the Elyria company before the merger.

Finds Aluminum Charges Unsubstantiated

Washington, Feb. 23.—The department of justice has decided that prosecution of contempt proceedings against the Aluminum Co. of America could not be maintained successfully on the charge that it violated a consent decree of 1912. Analyzing a report of the federal trade commission, the department said the following four major charges were made by the commission:

Delaying shipments of materials.
Furnishing materials known to be defective.
Discriminations in prices of crude or semifinished aluminum.
Hindering competitors from enlarging their business operations.

Evidence was lacking, it was contended by the department of justice, to make any of these charges stand. It is likely that this will intensify the demand of Senator Walsh, of Montana, that the senate conduct an independent investigation of the Aluminum company, and the alleged "lack of diligence" on the part of the department of justice in following out proceedings in line with the findings of the federal trade commission in the midst of the 1924 political campaign, as well as in the consent decree charges. As the trade commission now is conducting hearings on the latter complaint, the department of justice did not discuss it.

Pressed Steel Head Sees Better Car Buying

Stockholders of the Pressed Steel Car Co. have approved the merging of the subsidiary, the Western Steel Car & Foundry Co., with the parent company. The stockholders also approved a plan of readjustment of the company's capital structure. In the annual report of the company President F. N. Hoffstot states that "interviews with prominent railroad interests indicate that large budgets have been prepared including generous appropriation for new equipment, which should cause a substantial amount of car buying."

Normal purchases by the roads have not been made in the last two years, according to Mr. Hoffstot, because railroads have been able to get greater mileage out of their equipment due to increased efficiency, and because a number of roads have been considering consolidation and have not placed the car orders they ordinarily would need to take care of replacements and provide for necessary new equipment.

Adopt Cold-Finished Standards

Manufacturers Seek to Eliminate the Terms "Shafting" and "Cold Rolled" from Trade Parlance—Historical Development of the Industry Is Traced—Mill Practices and Various Grades of Steel Are Explained

SOME of the principal manufacturers of cold-finished steel have issued a 16-page manual to assist in familiarizing the trade with the standardized practices of the industry and in eliminating the ambiguities which have existed between the terms cold-finished steel bars, shafting and cold-rolled bars. In this connection, a historical sketch of the industry is presented and in part is as follows:

"While cold finishing of metals has been practiced from the earliest of times, specimens of this art made in 3000 B. C. being in existence, this industry, generally referred to as the cold-rolled steel industry had its inception in a process invented and patented by Bernard Lauth in 1859.

"For many years this process was used for the cold rolling of wrought iron bars for shafting purposes. As steel began to take the place of wrought iron, the method was found to be equally suitable for steel shafting used in the transmission of power and in the manufacture of machinery, machine tools, agricultural implements, etc. At that time there were few manufacturers and the principal process employed was cold rolling; hence the descriptive term "cold-rolled" which has been persistently applied in a general way ever since.

"In the meantime, the art of wire drawing gradually had developed to the point where large sizes and shapes, more properly classified as bars, were successfully drawn through dies.

"About 40 years ago the cold-rolling and cold-drawing processes were found to produce practically the same desirable physical properties, such as increased tensile strength and stiffness, accuracy to size, and smooth bright surface; and these processes from that time gradually have become interchangeable and today they are considered equivalent in the trade.

"The advent of the automobile, the development and common use of the typewriter, the calculating machine, the cash register, the many electrical and household utility devices, practically all within the past 25 years, have broadened the uses for this material. In this period automatic machinery has been developed for the rapid duplication of parts, and because of the suitability of cold-finished steel, it is used extensively in automatic machine work; and as the demand for cold-finished steel has increased there has been equal growth in its production.

"Shafting for its original purpose is still an important product of the industry and is produced by the two processes already referred to, also by the later method of turning and polishing, by which the physical properties of the hot-rolled bar are not changed, as the rough surface is removed by cutting, i. e. turning, and this semifinished surface in turn is finished to a high polish. Although this process is limited to the finishing of rounds, it is possible to turn and polish larger sizes than is practical by either of the other two methods, and therefore is extensively used in the production of larger rounds.

"As the volume and uses for cold-finished bars grew, each branch of the industry required bars of a particular steel analysis and finish. This demand has broadened the scope of production until it has passed beyond the period where mere "shafting" will serve all purposes. To meet this situation the various societies for the standardization of materials, in cooperation with the manufacturer and consumer, have in recent years standardized many of the products of this industry, so that today there are available to the users standardized grades, finishes and treatments adapted to practically every purpose.

Measured in tons of production, probably no other branch of steel manufacture has developed as rapidly in the last 25 years as the cold-finished steel bar industry. From a small consumer of hot-rolled bars it has grown until it is one of the largest users of merchant bars."

The various processes of manufacture are discussed in the pamphlet as follows:

Cold-Finished Steel Bars

This is a general term applied to steel of various shapes, which has been given a bright finish and close accuracy by reducing the cross section of the hot-rolled bar while cold. They can be produced by cold rolling, cold drawing and turning and polishing.

Cold-Rolled Steel

A hot-rolled bar, cleaned of scale, is passed repeatedly through a set of rolls with a small reduction in each pass until the bar is worked to the desired size. The effect of this cold rolling is to impart a bright surface finish and accuracy of size not obtainable in the hot rolled bar. Due to this cold working treatment the elastic limit and tensile strength are greatly increased.

Cold-Drawn Steel

A hot-rolled bar of any shape, cleaned of scale, is reduced by drawing cold through a die to the desired finished cross section. The effect on the surface finish, accuracy, elastic limit and tensile strength is essentially the same as that of the cold rolling process.

Turned and Polished

A hot-rolled round bar is reduced to desired size by cutting away the rough hot-rolled surface instead of compressing as in cold rolling or cold drawing. The turned bar then is buffed or polished. This process produces a bright finish with accuracy in size similiar to that obtained by cold rolling or cold drawing. The physical characteristics of the hot rolled bar remain unchanged.

The foregoing are definitions of terms which have been generally used, but describe method of finishing only. When cold finished steel for any particular purpose is required, the grade should be specified.

The following facts concerning the grades of steel are discussed as follows:

Screw Stock

In the manufacture of this steel, the main objective is free machining qualities at cutting speeds usually maintained with automatic machines. Certain elements, especially a high-sulphur content, must enter into its composition, causing it to be one of the most difficult classes of steel to manufacture. Its characteristics make it especially adapted for purposes where high-speed cutting is the essential feature and the finished part is not expected to withstand undue shocks or stresses. Screw stock is made by both the bessemer and the open-hearth processes.

Bessemer Screw Stock

This grade is made by the bessemer process, as its name implies. Its composition and structure permit of maximum free cutting results, but do not provide for more particular properties. (S. A. E. specification No. 1112.)

Open-Hearth Screw Stock

This grade is made by the open-hearth process and while not as free cutting as bessemer screw stock, it can be and is successfully used at high speeds in automatic machines. The quantity of production and perfection of finish from this grade of screw stock depends on tooling speeds, feeds and lubrication. It is somewhat tougher than bessemer screw steel, therefore more dependable. (S. A. E. specification No. 1120.)

Note—Since the most common use of certain sizes and shapes is for automatic machine purposes, this practice is generally observed: Unless otherwise specified, all rounds 1⅞-inch and smaller, squares ¼-inch and smaller, and all sizes hexagons will be furnished in screw stock quality.

The manual also includes diameters and tolerances of shafting, standard dimensions of square and flat key stock, and weights of round, square and flat steel bars.

Sheet Executives Will Convene May 17

Pittsburgh, Feb. 23.—Preliminary notices of the fourth annual convention of sheet steel executives are being sent out by the National Association of Sheet and Tin Plate Manufacturers, which will be held at the Hotel Greenbrier, White Sulphur Springs, W. Va., the week of May 17. The annual fellowship dinner will take place on Monday evening, May 17. The first of the business sessions of the convention will be held on Tuseday morning, May 18, and sessions will continue during the succeeding two days. A formal program will be issued later.

Merger Case Moves On

Pittsburgh, Feb. 23.—Hearings in the Bethlehem merger case were ended here last Thursday. More than 30 officials of local companies were called to testify as to the purchase of materials and prices before and after the merger. Additional testimony will be heard in Washington this week.

Samuel I. Kessler has been appointed receiver for the Berry Automatic Lubricators Corp., Newark, N. J.

Review Metallurgy of 25 Years

American Institute of Mining and Metallurgical Engineers Hold Annual Meeting at New York—Samuel A. Taylor Is Elected President—Paul D. Merica Heads Institute of Metals

Iron and Steel, Nonferrous Metals and Mining Sections Conduct Group Meetings—President Makes Plea for Endowment for Research—Medal Awards Are Made at Banquet on Closing Day

OPEN-hearth steel practice, metallurgy of iron and steel and coal mining were a few of the important problems review and discussed at the 133rd annual meeting of the American Institute of Mining and Metallurgical Engineers, held at the Engineering Societies' building, New York, Feb. 15-17. Registration was close to the 1500 mark and all session were well attended.

Simultaneous sessions were held on the three days and included meetings of the iron and steel, nonferrous metals, nonmetallic minerals, mining, petroleum, coal and industrial relations sections. The institute of metals division conducted four technical meetings, in addition to its annual lecture. Its annual business session was held on Tuesday evening at which time Paul D. Merica was elected the new chairman. The annual Howe memorial lecture was on Monday afternoon when William Campbell paid tribute to the work of the famous metallurgist.

Samuel A. Taylor was elected the new president of the American Institute of Mining and Metallurgical Engineers. Other officers elected are shown in the box below. Social features of the week's program consisted in a smoker on Monday evening and a banquet and dance at the Waldorf-Astoria on Wednesday evening. On this occasion were presented the J. E. Johnson Jr. award, the Robert W. Hunt medal and the James Douglas medal. The fall meeting of the institute will be held in Pittsburgh.

Gives Steel Hardening Theories

IN 1896, Dr. Albert Sauveur presented before the American Institute of Mining and Metallurgical Engineers a paper dealing with the theories of hardening steel by rapid cooling. At last week's meeting of the institute Dr. Sauveur, who is professor of metallurgy, Harvard university, Cambridge, Mass., read a paper on the same subject, its title being "The Current Theories of Hardening of Steel—Thirty Years Later." In view of the extensive discussion which the earlier paper received and also to the fact that the controversies have been revived recently by claims of some that certain vexing questions had at last been solved, the new paper was of particular interest.

Although recrystallization of metals has been the subject of much investigation, little experimental evidence has been presented as to how it takes place. Evidence of this nature was submitted in an interesting paper, "A Photomicrographic Study of the Process of the Recrystallization in Certain Cold-Worked Metals," by V. N. Krivobok, research associate, Carnegie Institute of Technology, Pittsburgh.

"Introduction to Ultra Violet Metallography," was the title of a paper read by F. F. Lucas, member technical staff, Bell Telephone Laboratory, New York. According to the author, ultra violet rays were first made available for use in 1904, but their use in metallography has remained dormant for a quarter century. Recently some work has been done abroad and Mr. Lucas now is doing some experimental work on the subject. Ultra violet rays were selected for metallographic work because of their ability to increase resolution using a smaller objective. Another advantage is that certain areas of specimens absorb the rays in varying proportions, thus facilitating study.

A brief paper presented by C. Y. Clayton, professor of metallurgy, Missouri School of Mines, Rolla, Mo., on the subject "Effect of Annealing Upon the Hardness of Cold-Worked Ingot Iron," described some preliminary tests which have been conducted on 0.03 per cent iron. Since literature discloses no references on work on this subject, the present investigation is believed to be one of the first.

As the final paper at the session on Monday afternoon, L. H. Marshall, metallurgist, Ohio Brass Co., Mansfield, O., read a short discussion on "Production of Non-Brittle Malleable Iron." Embrittlement in hot dip galvanized malleable castings was particularly noticeable when the castings were quenched in hot water from temperatures between 570 and 1020 degrees Fahr. When the castings were quenched from the zone 1100 to 1380 degrees Fahr., impact values were obtained which were better than those in the untreated iron. As the process finally was worked out, untreated castings may be heated to 1200 degrees, Fahr. and quenched and then galvanized without embrittlement. Castings which already have been galvanized may be reclaimed from embrittlement by the same procedure. Before this special treatment was worked out losses on one casting ran from 20 to

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40 per cent. Employment of the treatment reduced this loss to 0.6 per cent.

In discussing Mr. Marshall's paper, P. H. Brace, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., stated experience at that company's plant indicated that brittleness was caused by the pickling bath and not galvanizing. He referred to a special malleable switchboard casting of thin section with which considerable difficulty had been encountered. Further, he objected to the use of impact tests as the means for brittleness determination and advocated the use of tensile tests as the better index.

Papers presented at the second meeting of the iron and steel section on Tuesday afternoon were of a highly technical nature. The first was "Influence of Temperature, Time and Rate of Cooling on Physical Properties of Carbon Steel," by F. B. Foley, metallurgist, Lucey Mfg. Corp., Chattanooga, Tenn.; C. Y. Clayton, department of metallurgy, Missouri School of Mines, Rolla, Mo.; and W. E. Remmers, mechanical engineering department, Washington university, St. Louis.

A rather comprehensive study of iron-tungsten alloys was described by W. P. Sykes, metallurgist, Cleveland Wire Works, General Electric Co., Cleveland, in his paper "Iron-Tungsten System." A portion of Mr. Sykes' summary is as follows: The system of iron-tungsten comprises: (a) Solid solution of tungsten in iron, 33 per cent of tungsten being soluble at 1525 degrees Cent. and 8 per cent at room temperature. (b) A eutectic at 49 per cent tungsten, being a conglomerate of the compound Fe_2W_2 and the solid solution of tungsten in iron. (c) The compound iron tungstide (Fe_2W_3) at the composition 68.7 per cent tungsten. (d) Beyond this composition there may be present, if below 1650 degrees Cent., the compound—iron in tungsten solid solution. If heated above 1650 degrees Cent., the iron tungstide partly decomposes into iron-rich and tungsten-rich phases. (e) Tungsten dissolving 1.2 per cent iron at 1600 degrees Cent. The hardness of some of these alloys, water quenched from 1500 degrees Cent., is increased as much as 130 per cent by aging at temperatures from 600 to 700 degrees Cent.

Delta Iron Is Produced

The paper which followed was of a similar nature, dealing with iron-chromium alloys. Its title was "Delta Iron in the Iron-Chromium Alloys," and was presented by E. C. Bain, metallurgical engineer, Union Carbide & Carbon Research laboratories, Long Island City, N. Y. Mr. Bain had produced and preserved at room temperature the delta iron solid solution. Both Mr. Bain and Mr. Sykes had conducted their investigations independly but had exchanged confidences. Their results agreed closely and were hailed as important contributions to metallurgy.

Concluding this session was a paper "Economic Significance of Cyanide Accumulation in the Blast Furnace," by Richard Franchot, chemist, Ferro-Chemicals, Inc., Washington. The paper was followed by a written discussion prepared by F. W. Davis, Lincoln, Nebr., who did not agree with Mr. Franchot.

During the last two years the institute has given considerable attention to open-hearth furnace practice and several conferences have been held on the subject. Consequently the iron and steel session on Wednesday morning was devoted to the open hearth. J. V. W. Roynders, presided at the meeting and first called for the formal report of the subcommittee on open-hearth steel. This was followed immediately with a paper "Making Rimmed Steel," by Carl Pierce, superintendent, open-hearth department, Mansfield Sheet & Tin Plate Co., Mansfield, O.

The paper dealt with rimming steel made by the open-hearth process and with the lower carbon steels, such as sheet and tin bar, rivet stock, skelp, etc., although good rimming steel as high as 0.40-0.50 per cent carbon can be made by having good open slags and giving proper attention to working and tapping temperatures. In sequence, the author discussed the charge, working the heat, shaping the slag, casting temperature, pouring, and concluded with some theories on the metallurgy of rimmed steel.

Considerable discussion was brought out by this paper, those taking part being Henry D. Hibbard, consulting engineer, Plainfield, N. J.; G. A. Reinhardt, metallugist, Youngstown Sheet & Tube Co., Youngstown, O.; and C. L. Kinney, open-hearth superintendent, Illinois Steel Co., Chicago. Mr. Hibbard urged investigation as to the nature of the gases which are occluded in pouring ingots as a basis for working out a means for their elimination. It was rather generally believed that ammonia is one of the gases.

A paper was scheduled to discuss "Effect of the Open-Hearth Process on Refractories," but its presentation was postponed until the fall meeting of the institute at Pittsburgh. In announcing this action, D. A. Lyon, bureau of mines, outlined the nature the investigation now under way and referred to the development of super refractories for open-hearths.

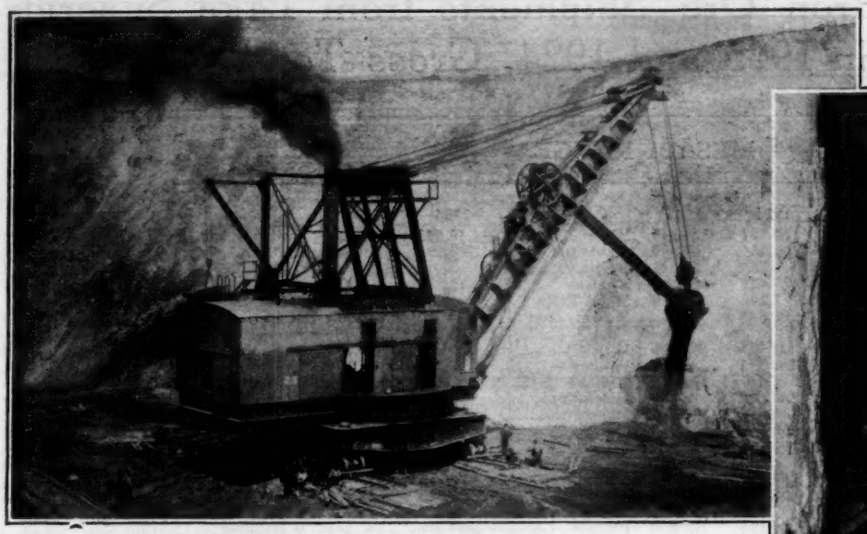
Survey Shows Consumption of Fuel

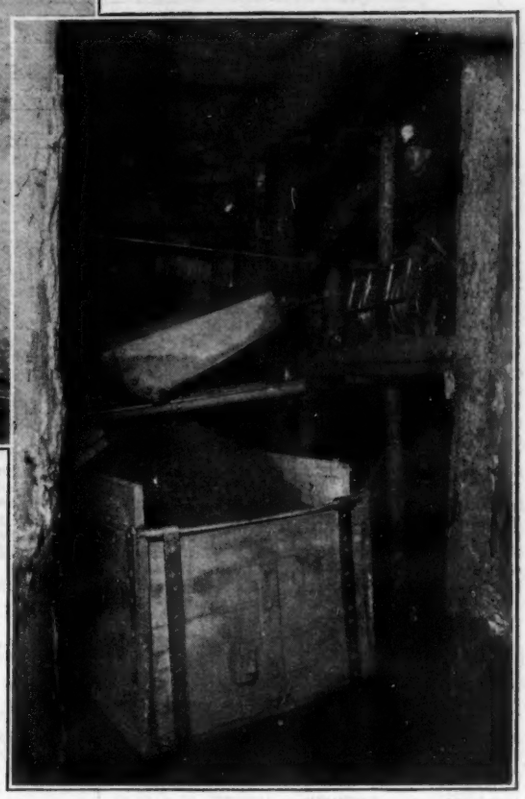
COAL predominates as fuel in the United States, according to a report of the coal and coke committee read at the coal session on Tuesday afternoon. Four principal fuels are in use and their present consumption is in the following proportion: Bituminous coal, 73 per cent; anthracite coal, 11.5 per cent; fuel oil, 10.3 per cent and natural gas, 5.2 per cent. The committee pointed out that probably the peak in the use of gas and fuel oil is about reached and that a reduction in their use should be expected. Various economic phases of the bituminous coal industry, about which considerable misinformation has been circulated, were discussed in the report.

At the Wednesday afternoon session of the coal section, H. J. Rose, assistant chief chemist, Koppers Co., Pittsburgh, read an interesting paper on "Selection of Coals for the Manufacture of Coke." According to the author, 65 million tons of coal were carbonized in by-product and beehive coke ovens of the United States in 1924, a tonnage which represented 13.4 per cent of the bituminous coal mined that year. Of the coke made, 82.6 per cent was for blast furnace use, 6.6 per cent for foundry use, 6.7 per cent for domestic use, and 4.1 per cent for water gas manufacture and other uses.

Foundry sands came in for their share of attention at a meeting of the nonmetallic minerals section on Monday morning. R. M. Bird, George F. Pettinos, Philadelphia, presented a paper "Mining and Preparation of Molding Sands," in which he was concerned with the Jersey sands in the Albany district. Numerous lantern slides were used to show the stripping, hauling, cleaning and mixing operations. Answering a question, Mr. Bird

(*Concluded on Page* 555)





Iron Ore Shipments in 1925 Above Ten-Year Average

By A. J. Hain

SHIPMENTS of Lake Superior iron ore in 1925 amounted to 55,516,344 tons, as finally determined by official reports. This is an increase of 11,621,234 tons, or 26.5 per cent, over the total for 1924. It exceeds the average annual shipment in the ten years preceding 1925 by 3,353,727 tons, or 6 per cent.

This indicates that last year's record is closer to a normal figure than any other in recent years. In the past ten years shipments have been well above 60,000,000 tons or far below 50,000,000 tons, alternately high or low. Therefore, the report for 1925 suggests the probability of another record nearly normal for 1926; a conclusion which some shippers already have reached based on their business observations.

The largest increase in shipments in 1925 was reported for the Vermillion range, 46.9 per cent, although the amount forwarded was only 1,437,577 tons. The Menominee and Gogebic ranges increased their shipments by 37 per cent, while the increase for the Marquette range was more than 31 per cent. The Mesabi range, supplying considerably more than half of the total for the Lake Superior district, shows an increase of 19.7 per cent. The Cuyuna range reports the least gain of all, only 2.7 per cent.

The amount of ore brought down the lakes was 55,516,344 tons, 26.8 per cent more than in 1924. The all-rail tonnage gained 12.8 per cent, the total last year being 1,435,046 tons.

Shipments were made in 1925 from 88 mines on the Mesabi range; 36 on the Menominee; 20 on the Marquette; 21 on the Gogebic; 14 on the Cuyuna; five on the Vermillion and two on the Mayville-Baraboo. The total, 186 mines, comprises five more than in 1924. In other words, with the addition of five mines to the active list, shipments increased 11,621,234 tons. But this does not represent cause and effect; the slight increase in the number of active mines being merely incidental. The Lake Superior industry could have reduced the number of active mines last year and still have shipped considerably more than it actually did.

The flexibility of the industry in this respect is shown by the fact that nine mines of the 88 active on the Mesabi range in 1925 shipped 19,149,442 tons, more than half of the total 35,889,988 tons from that range.

The shipment from the Hull-Rust mine, Mesabi range, operated by the United States Steel Corp's. mining subsidiary, was 5,141,909 tons. This amount exceeded the entire shipment from the Marquette range. It was within 126,937 tons of the total for the Menominee range. It was less than 1,000,000 tons behind the record for the other large range, the Gogebic.

The Oliver Iron Mining Co., Steel corporation's subsidiary, in 1925 shipped 24,688,690 tons, from all its properties in the Lake Superior district,

Comparative Shipments by Ranges, 1924 and 1925

	1925	1924	Increase in 1925	Per cent Increase
Mesabi	35,889,988	29,141,665	5,748,323	19.7
Menominee	5,268,846	3,836,707	1,432,139	37.4
Marquette	4,185,533	3,174,660	1,010,873	31.8
Gogebic	7,068,296	5,159,838	1,908,458	37.0
Cuyuna	1,509,217	1,468,940	40,277	2.7
Vermillion	1,437,577	978,097	459,480	46.9
Mayville-Baraboo	156,887	135,203	21,684	16.0
Totals	55,516,344	43,895,110	11,621,234	26.5
By lake	54,081,298	42,623,572	11,457,726	26.8
By rail	1,435,046	1,271,538	163,508	12.8

Official Record of Iron Ore Shipments from Lake Superior District in 1925 and 1924, Gross Tons

MESABI RANGE

	1924	1925		1924	1925		1924	1925		1924	1925
Aad	4,078	25,171	Harold	126,527	163,645	Mace No. 2	46,863	4,354	Smith	7,120	115,209
Adams	607,633	45,634	Harrison	94,468	41,300	Mahoning	1,717,092	1,818,559	South Agnew	206,802	290,222
Albany	333	201,943	Harrison Annex	2,268	23,317	Margaret	5,919		South Judd	292,561	303,012
Alexandria	285,305	331,741	Hawkins	425,451	425,793	Mariska	17,276	59,042	Spruce	1,515,542	1,555,835
Arcturus	32,967		Helen	1,102	66,716	Mary Ellen	40,028	113,638	St. James	519,210	
Belgrade		51,742	Helmer	38,641		Mesabi Iron Co.	43,689		St. Paul	16,686	39,126
Bennett	555,608	682,099	Higgins-McEwen	27,622	226,987	Miller	11,202	399,688	Stevenson		133,501
Billings	100,483	44,341	Hill Annex	1,189,917	1,210,277	Minnewas		13,170	Susquehanna	494,603	206,872
Biwabik	88,031	301,406	Hill-Trumbull	302,995	504,987	Missabe Mt.	3,182,801	3,605,071	Thorne	50,744	
Boeing	505,348	503,952	Hobart	104,838		Mississippi	34,105	84,198	Tyler	24,703	34,529
Bray	124,236		Holman	754,726	864,931	Morris	1,316,561	1,630,692	Uno North		668
Brunt	126,146		Hull-Rust	4,653,568	5,141,909	Morrow (new)		32,420	Uno South	21,706	36,876
Burt-Pool-Day	7,810	48,995	Itasca	91,140	52,454	No. Eddy	18,041	19,419	Utica	214,168	410,729
Canisteo	1,150,117	1,749,416	Julia		68,821	No. Harrison	207,246	460,536	Vernon	13,111	3,738
Chisholm	251,169	217,833	Kerr	151,516	153,047	No. Harrison Annex		13,522	Wabigon		357,028
Clark	44,743	1,897	Kevin	3,700		Patrick	209,020	338,439	Wacootah	9,218	30,026
Commodore		200,024	Kinney	77,111	228,630	Philbin	83,283	167,805	Wade	11,678	5,009
Corsica	279,872	459,257	Lamberton	61,498	102,339	Quinn	84,723	8,576	Wanless	160,882	213,935
Dale	38,794	48,271	LaRue	132,839	287,183	Ruddy		12,494	Warren	201,090	
Danube	170,872	328,745	Laura	295,835	253,926	Sargent	280,069	257,738	Webb	146,748	416,119
Dean	359,034	248,240	Leetonia	123,381	267,656	Scranton	302,383	403,987	Wellington	327,210	420,526
Duncan	5,141	5,120	Leonard	406,319	698,849	Sellers	1,040	1,380,377	Williams	10,064	44,862
Dunwoody	638,772	749,800	Leonidas	266,651	1,057,306	Shada	106,955	194,350	York	91,021	76,158
Fay	121,735		Lincoln	219,592	198,768	Shenango	130,387	391,391	Total	29,141,665	35,889,988
Fayal	469,970	646,863	Little & Prindle	956,369	123,584	Sliver		72,981			
Glenn	466,442	630,269									
Hanna	25,402	28,378									

MENOMINEE RANGE

	1924	1925		1924	1925		1924	1925		1924	1925
Antoine (Traders)		9,260	Caspian	180,668	314,685	James	104,953	227,430	Spies	19,667	54,698
Aragon	266,874	283,113	Chapin	347,455	409,790	Judson	113,626	145,772	Sturgeon		533
Balkan	95,010	71,578	Davidson	71,335	252,137	Loretto	41,469	99,802	Tobin	102,715	91,642
Baltic	28,418	67,675	Delta	18,290	14,686	Millie	23,952	28,809	Virgil		9,596
Bates	101,420	32,420	Ernst		22,392	Monongahela	173,112	187,041	Warner	80,038	144,521
Bengal	322,540	243,087	Florence		48,210	Odgers	80,022	178,342	West Chapin	1,194	
Berkshire	259,892	271,028	Fogarty	42,802	21,068	Penn Iron Mining Co.	176,769	279,956	Zimmerman	96,351	132,417
Bristol (Claire)	110,489	270,226	Forbes	74,210	100,535	Porter	20,049		Total	3,836,707	5,268,846
Buck	20,319	103,724	Great Western		38,914	Riverton Group	111,311	344,903			
Carpenter	197,278	138,481	Hiawatha	196,427	263,036	Rogers	218,651	215,081			
			Homer	139,401	152,258						

MARQUETTE RANGE

	1924	1925		1924	1825		1924	1925		1924	1925
*Adams (Amer. Mining Co.)	21,428		Holmes	81,933	145,163	Morris-Lloyd	269,228	236,446	Stephenson	186,899	216,089
Athens	128,958	209,281	Imperial	194,588	267,764	Negaunee	337,762	390,238			
Barnes-Hecker	17,100	124,498	Isabella	127,068	177,235	Ogden		64,822	Total	3,174,660	4,185,533
Cambria	101,066	161,547	Jackson	33,262		Princeton (Swanzey)	7,453	13,213			
Cleveland Cliffs Group	420,598	501,414	Lake Superior Maas	294,845	362,669	Republic	53,818	74,110	*Shipments for 1925 included in Maas and Negaunee mines.		
Gwynn	4,935	980	Maitland	117,560	346,443	Richmond	255,429	283,002			
			Mary-Charlotte	209,148	257,848	Rolling Mill	153,239	131,534			
				158,343	221,237						

GOGEBIC RANGE

	1925	1925		1924	1925		1924	1925		1924	1925
Anvil	28,456	35,099	Eureka	273,122	301,752	Norrie Group	1,120,916	1,586,757	Tilden	178,524	155,219
Ashland	82,149	120,884	Ironton	327,416	435,886	Ottawa	185,798	407,850	Townsite	85,749	99,473
Asteroid	140,990	177,308	Keweenaw	103,633	181,647	Palms	299,139	372,365	Wakefield	230,995	603,771
Berkshire	595		Montreal	567,419	608,876	Plymouth	504,502	586,180	Yale	108,779	46,750
Cary	76,250	90,441	Morgan		30,001	Puritan	77,470	290,387			
Davis (Wis.)		25,797	Newport	654,604	790,744	Sunday Lake	113,332	121,109	Total	5,159,838	7,068,296

CUYUNA RANGE

	1924	1925		1924	1925
Armour No. 2	267,813	175,125	Louise	22,075	181,038
Bonnie-Belle	36,678	11,882	Mahnomen	248,748	333,791
Croft	13,301		Maroco	204,793	106,405
Evergreen		18,276	Meacham		198,849
Hill Crest	101,173	3,934	Milford		205,050
Hopkins	6,491	19,929	Sagamore	244,430	165,062
Huntington	45,695		Wearne (State Lease)	46,228	
Ironton	115,955	70,931			
Kennedy	115,560	18,945	Total	1,468,940	1,509,217

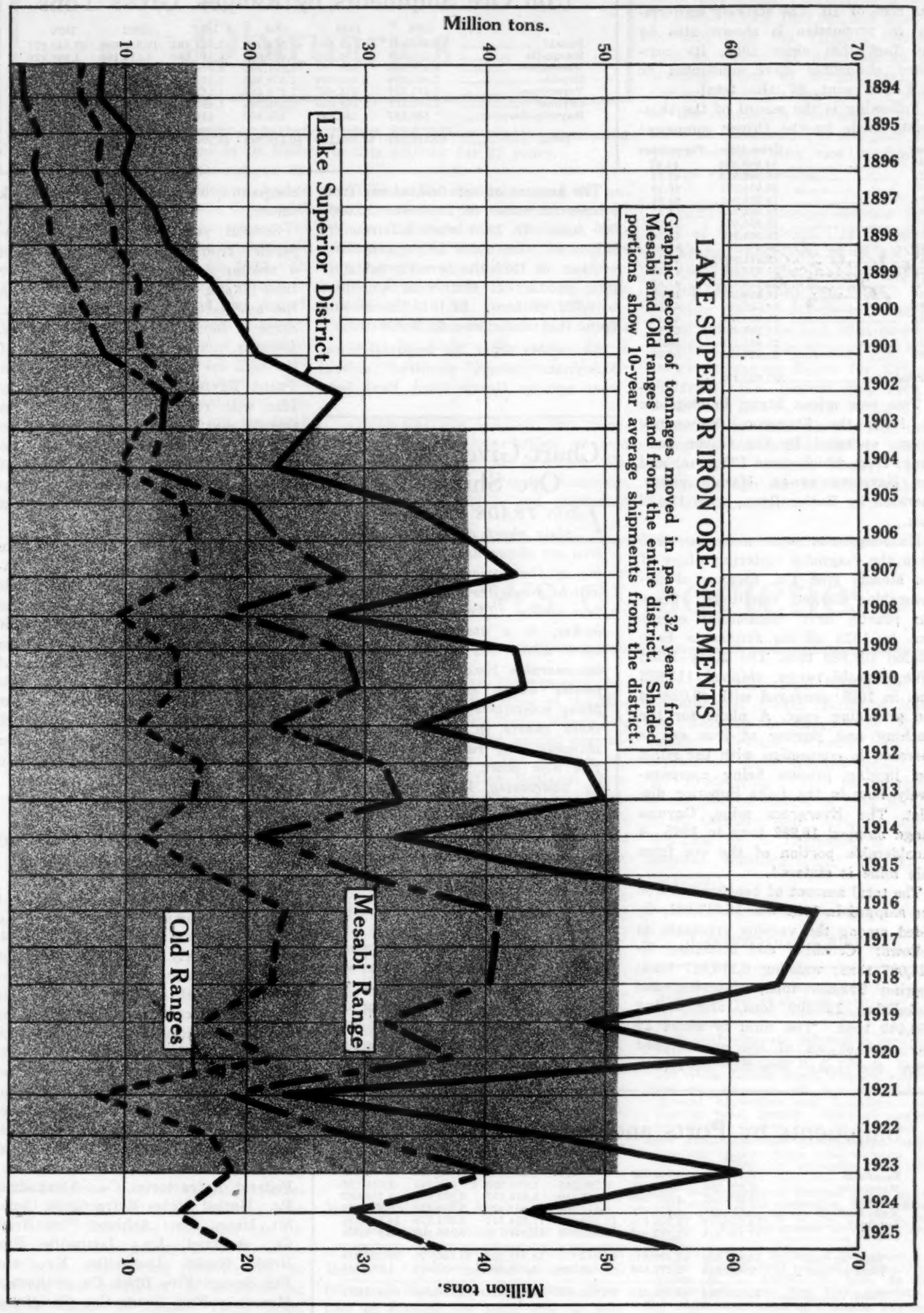
VERMILLION RANGE

	1924	1925		1924	1925
Chandler	44,542	100,956	Zenith	301,737	340,121
Pioneer	473,552	683,153			
Sibley	98,874	214,448	Total	978,097	1,437,577
Soudan	59,392	98,899			

MAYVILLE-BARABOO RANGE

	1924	1925		1924	1925
Cahoon	36,198	50,774			
Mayville	99,005	106,113	Total	135,203	156,887

	1924	1925
GRAND TOTAL	43,895,110	55,516,344


LAKE SUPERIOR IRON ORE SHIPMENTS
Graphic record of tonnages moved in past 32 years from Mesabi and Old ranges and from the entire district. Shaded portions show 10-year average shipments from the district.
Million tons.
10
20
30
40
50
60
70
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
Lake Superior District
Mesabi Range
Old Ranges

44.47 per cent of the total. In 1924 it shipped 19,802,032 tons, or 45.11 per cent of all. The striking uniformity in proportion is shown also by the fact that since 1908, its combined shipments have amounted to 45.4 per cent of the total.

Following is the record of the shipments made by the Oliver company:

Year	Gross tons	Percentage
1925	24,688,690	44.47
1924	19,802,032	45.11
1923	28,074,771	46.19
1922	19,726,047	44.84
1921	14,056,759	61.65
1920	24,936,073	41.28
1919	22,065,148	45.20
1918	26,178,782	41.66
1917	28,571,977	44.34
1916	31,673,131	47.52
1925	22,518,613	47.63
1914	16,039,654	49.01
1913	24,502,244	49.06
1912	23,845,363	49.46
1911	17,282,499	52.70
1910	21,661,143	40.86
1909	21,397,866	50.36
Total	387,020,792	

Two new mines began to ship ore in 1925, the Sturgeon, Menominee range, operated by the Oliver company, from which came 533 tons; and the Harrison annex, Mesabi range, operated by Butler Bros., with 13,522 tons.

No shipments were made in 1925 from the magnetic sintering plant of the Mesabi Iron Co., because of unfavorable market conditions. Since the plant's first commercial operation in 1922 all its shipments have totaled 137,889 tons. The Mary Ellen mine, Mesabi range, shipped 113,638 tons in 1925 compared with 40,028 in the preceding year. A plant for the washing and jigging of iron ore is operated in connection with the mine, the jigging process being comparatively new in the Lake Superior district. The Evergreen mine, Cuyuna range shipped 18,282 tons in 1925. A considerable portion of the ore from this mine is sintered.

The total amount of beneficiated iron ore shipped in 1925 was 15,917,031, divided among the various processes as follows: Crushing and screening 9,244,087 tons; washing 6,174,417 tons; jigging 113,638 tons; sintering and nodulizing 123,209 tons, and drying 258,680 tons. The total is about 29 per cent of all of the ore shipped from the Lake Superior district.

Iron Ore Shipments by Ranges, Gross Tons

	1925	1924	1923	1922	1921	1920
Mesabi	35,889,988	29,141,665	41,814,463	28,055,394	16,350,696	37,149,277
Marquette	4,185,533	3,174,660	3,892,666	2,817,390	1,116,468	4,608,323
Menominee	5,268,846	3,836,707	4,854,781	4,078,519	1,584,404	6,562,106
Gogebic	7,068,296	5,159,838	6,579,950	6,218,610	2,336,493	8,763,332
Vermillion	1,437,577	978,097	1,278,598	1,211,467	869,313	1,007,435
Cuyuna	1,509,217	1,468,940	2,220,745	1,497,615	488,562	2,191,528
Mayville-Baraboo	156,887	135,203	138,800	110,101	52,413	129,571
Total	55,516,344	43,895,110	60,780,003	43,990,096	22,798,349	60,411,572

The amount of beneficiated ore from Minnesota mines in 1925 was 13,600,000 tons. In 1923 when all iron ore shipments were about 10 per cent larger than in 1925 the beneficiated shipping product in Minnesota amounted to 8,729,000 tons. In 1915 the amount from that state was 3,030,000 tons.

Shipments from the Imperial mine, Marquette range, acquired several year ago by Henry Ford, have been increasing. In 1925 the amount was 267,764 tons, compared with 194,588 tons in 1924.

There now has been forwarded from the Lake Superior district since the beginning of operations a total of ,233,937,390 tons. Beginning more than 25 years ago. IRON TRADE REVIEW compiled the record annually from reports received from operating companies, owners, railroads and dock offices.

Several years ago the Lake Superior Iron Ore association began a similar compilation, and this year IRON TRADE REVIEW collaborated with the association to simplify the work. Some of IRON TRADE REVIEW'S figures, however, differ slightly from those of the iron ore association, because IRON TRADE REVIEW follows its customary plan with respect to iron ore lost in transit and left in dock. When iron ore is lost enroute from mine to destination, this publication does not count it as a shipment; the ore association does. The amount so lost in 1925 was 1260 tons.

When ore is left in upper lake dock at the close of a shipping season this publication does not include it in the season's record, while the association does. IRON TRADE REVIEW counts it when it is shipped from upper lake points. At the close of 1924, 510 tons was left in dock; this is included in IRON TRADE REVIEW report for 1925. At the close of 1925 17,718 tons was remaining in upper lake docks. This is not included among shipments in 1925.

Chart Gives All Iron Ore Shipments

IRON TRADE REVIEW'S complete chart of Lake Superior iron ore shipments from the opening of the various mines to date will be ready for distribution in a few weeks. The chart, 28 x 31 inches, is a standard reference work which has proved valuable innumerable times to those companies which subscribe for it. Many companies use a number of these charts in their operating, shipping and sales departments. The new chart may be obtained by addressing IRON TRADE REVIEW, *Penton building, Cleveland, and enclosing* $2.

Refractories Combine Being Negotiated

Details of a proposed merger of refractories manufacturers are being negotiated in New York. Thomas N. Kurtz, formerly head and owner of brick plants at Claysburg and Orviston, Pa., which were acquired by the General Refractories Co. when he retired, is identified actively with the consolidation proceedings. Investment involved in the merger aggregates in excess of $10,000,000. Companies involved are the Haws Refractories Co., Johnstown, Pa.; Crescent Refractories Co., Curwensville, Pa.; L. H. Steel, Lock Haven, Pa.; Federal Refractories Co., Alexandria, Pa.; United States Refractories Corp., Mt. Union, Pa.; Ashland Fire Brick Co., Ashland, Ky.; Louisville Fire Brick Works, Louisville, Ky., and Big Savage Fire Brick Co. or Savage Mountain Fire Brick Co., Frostburg, Md.

Shipments by Ports and All Rail, Gross Tons

	1925	1924	1923	1922	1921	1920
Escanaba	5,644,278	4,244,669	5,607,411	4,592,354	1,806,656	7,361,070
Marquette	3,487,968	2,516,548	2,789,285	1,976,220	786,946	3,415,108
Ashland	6,664,501	4,807,565	6,237,449	5,813,207	2,264,705	8,180,852
Two Harbors	6,016,096	4,817,494	6,418,464	5,952,437	3,286,338	9,278,464
Superior	14,560,477	13,355,214	17,820,476	11,284,240	4,991,278	14,812,398
Duluth	17,707,978	12,882,082	20,163,619	13,044,771	9,164,803	15,479,334
Total by lake	54,081,298	42,623,572	59,036,704	42,613,229	22,300,726	58,527,226
Total by rail	1,435,046	1,271,538	1,743,299	1,376,867	497,623	1,884,346
Total	55,516,344	43,895,110	60,780,003	43,990,096	22,798,349	60,411,572

Obituaries

JACOB HAISH, inventor of barbed wire, died at his home in De Kalb, Ill., Feb. 19, at the age of 99. He first conceived the idea of barbed wire from making a cattle fence with osage thorns woven into wire. The finished product was first produced in 1873 and patented Jan. 20, 1874. He was the founder of one of the companies later absorbed by the American Steel & Wire Co. From wiremaking, Mr. Haish developed a manufacturing business at De Kalb which included agricultural implements. His interests were sold several years ago, his only active connection at his death being with the Haish State bank at De Kalb, which he organized in 1894. Mr. Haish was born in Cilsul, Baden, Germany, 1826. He has given large sums for libraries, schools and hospitals, and it is said his will provides for considerable philanthropic gifts.

* * *

Thomas F. Flatley, aged 36, assistant superintendent of the double storage department, Jones & Laughlin Steel Corp., Pittsburgh, died Feb. 21 at his home in that city. Death was attributed to heart attack.

* * *

George H. Spiegel, 65 years old, retired boiler manufacturer, died at his home in Newport, Ky., Feb. 15. He had been an invalid for four years, caused by a stroke of paralysis. For many years he was a member of McIlvain & Spiegel, Cincinnati, boiler and tank manufacturers, and a son of the late William Spiegel, founder of the firm.

* * *

E. Bertram Pike, president of Pike Mfg. Co., Pike, N. H., manufacturer of abrasive equipment, and also prominent with Cortland Grinding Wheel Corp., Chester, Mass., died Feb. 17. Mr. Pike had been identified with the development of abrasive industries in this country for nearly half a century and he was prominent also in New England industrial circles.

* * *

Franklin Van Winkle, one of the editors of *Power*, died Feb. 15 in the Paterson general hospital, Paterson, N. J., in which city he was born in 1856. Graduated from Stevens Institute of Technology in 1877, after a brief engineering experience, he served as professor of engineering at a college in Texas. Three years later he became consulting engineer in planning and constructing manufacturing and power plants, continuing in this activity for 27 years.

* * *

William W. Kennedy, aged 60, superintendent of the Riverside plant of National Tube Co. at Benwood, near Wheeling, W. Va., and one of the leading pipe experts of the country, died suddenly Feb. 19 at his home in Wheeling. Mr. Kennedy was born in Scotland and was brought to this country by Andrew Carnegie. For a time he was in the mills in the vicinity of Pittsburgh.

* * *

James Harrison Whitner, vice president of the Virginia Bridge & Iron Co., died Feb. 10 at Roanoke, Va. Mr. Whitner was born in Anderson, S. C., Aug. 15, 1861, and graduated from Rensselaer Polytechnic institute in 1885. Since 1898 he had been associated with the Virginia company, first in charge of its southern contracting office at Birmingham, and for over 20 years thereafter in charge of the company's contracting department at Roanoke. For the past eight years he had been vice president in charge of contracting.

* * *

Charles V. Slocum, former president of the National Car Wheel Co., Pittsburgh, died Feb. 21 at his home in that city. He had been in ill health for the last two years. Since severing his connections with the National company he had been co-superintendent with his wife of the Pittsburgh Industrial Home for Crippled Children. Mr. Slocum was born in Granville, N. Y., and obtained his education in New York. For many years he was well-known in musical circles as a concert singer. About 20 years ago he affiliated with the car wheel company.

News of Societies

THE American Management association will gather at the Hotel Astor, New York, March 3-5, on the occasion of the annual convention of the society. The opening address will be on "Our National Management Clearing House," by President Sam A. Lewisohn, vice president and treasurer, Miami Copper Co., Wednesday, March 3. Among other papers on the program are the following: "The Foreman's Part in Training," by Frank Cushman, chief of industrial education service, federal board for vocational education, March 3; "The Cost and Economics of Company Publications," report of committee by Chairman John Mills, director of publication, Bell Telephone Laboratories Inc., March 3; "Budgeting Man Power," by Earl B. Morgan, manager of employment and service department, Curtis Publishing Co., March 4, and "Setting up a Forecasting Program," by Albert Bradley, assistant treasurer, General Motors Corp.

* * *

Metal Institute To Meet

The annual meeting of the Institute of Metals will be held in London March 10-11, in the hall of the Institution of Mechanical Engineers. Election of council for 1926 will be held the first day. Among the papers tentatively scheduled for the meeting are the following: "Note on the Softening of Strain Hardened Metals and Relation to Creep," by R. W. Bailey; "Crystal Growth in Recrystallized Cold Worked Metals," by W. Feitknecht; "The Interpretation of the Microstructure of Cast Metals," by R. Genders, and "Striaton Due to Working or to Corrosion in Microscopical Metallography," by A. M. Portevin.

Convention Calendar

March 3-5—American Management association. Annual convention at Hotel Astor, New York. H. LeRoy Neilson, Delco Light Co., Dayton, O., secretary.

March 10-11—Concrete Reinforcing Steel institute. Second annual meeting at Hotel Traymore, Atlantic City, N. J. M. A. Beeman, 160 North LaSalle street, Chicago, secretary.

April 6-8—American Oil Burner association. Annual convention and exposition, Book-Cadillac hotel, Detroit. Office of secretary, 350 Madison avenue, New York.

April 22-24—American Electrochemical society. Meeting, Chicago Beach hotel, Chicago. Colin G. Fink, Columbia university, New York, secretary.

April 28-30—National Foreign Trade council. Thirteenth annual convention, Francis Marion hotel, Charleston, S. C. O. K. Davis, India house, 1 Hanover square, New York, secretary.

May 3-6—American Society of Mechanical Engineers. New England regional meeting, Providence, R. I. Calvin W. Rice, 29 West Thirty-ninth street, New York, secretary.

May 10-15—Association of Chemical Equipment Manufacturers, Inc. Second chemical equipment and process engineering exposition, Public hall, Cleveland. Roberts Everett, 1328 Broadway, New York, secretary.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

ANCHOR DRAWN STEEL CO., Latrobe, Pa. has elected D. R. Wilson president, G. W. Morrison vice president, W. W. Noble vice president and secretary and Charles Potter treasurer and assistant secretary. Directors were re-elected as follows: D. R. Wilson, G. W. Morrison, W. W. Noble, H. V. Baxter, J. E. Barnett, R. C. Stiefel and K. W. Daly.

* * *

CANADIAN LOCOMOTIVE CO., Kingston, Ont., has taken an order for machinery for the Colorado Fuel & Iron Co., according to announcement by William Casey, general manager.

* * *

NORTHERN ENGINEERING WORKS, Detroit, has elected Henry W. Standart president and treasurer; Harry C. Bulkley vice president; Louis H. Olfs secretary. These officers, with W. Robertson chief engineer and Joel H. Prescott, form the board of directors.

* * *

H K. FERGUSON CO., Cleveland, general and industrial contractors has elected Harold K. Ferguson president, J. S. Ruble and H. S. Jacoby vice presidents and W. M. Brown secretary. The company has a large volume of business ahead for the year.

* * *

AUTOMATIC APPLIANCE CORP. recently organized at Winston-Salem, N. C., with $100,000 capital, will act as distributors of oil burning and refrigerating equipment and does not intend to build a plant. Hortus A. Scott is president and treasurer and Thurman T. Scott vice president and secretary.

* * *

ANDERSON ENGINE & FOUNDRY CO., Anderson, Ind., has elected E. W. Cooney president and general manager, L. F. Pence vice president, I. E. May secretary and Bert McBride treasurer. Directors include the officers and Emerson E. McGriff, Portland, Ind.; Frank C. Hesch, Titusville, Pa.; Harold Taylor, Indianapolis, Ind.

* * *

CHICAGO HARDWARE FOUNDRY CO., North Chicago, Ill., will complete a 1-story, 75 x 100-foot, brick and steel addition about May 1 in which it will house the finishing and assembling work resulting from the acquisition of the Dry Blow Co., Syracuse, N. Y. Electrical hand dryers are the product. No equipment will be needed.

* * *

BETHLEHEM STEEL CO. has sold its old shell loading plant near Wilmington, Del., to the Delaware Rayon Co. The plant has a frontage of the Delaware river and buildings containing more than 27,000 square feet of floor space and was employed as a loading plant during the war. Hereafter it will be devoted to the manufacture of rayon yarn.

* * *

ALUMINUM CO. OF AMERICA, Pittsburgh, has elected officers and directors as follows: Arthur V. Davis, president; G. R. Gibbons, R. E. Withers, E. S. Fickes, R. A. Hunt, E. K. Davis, C. H Moritz, and W P. King, vice presidents; G. R. Gibbons, secretary; R. E. Withers, treasurer, and the following directors: G. H. Clapp, A. V. Davis, D. L. Gillespie, R. A. Hunt, A. K. Lawrie, and R. B. Mellon.

* * *

WEIRTON STEEL CO. has placed a contract with the Heine Boiler Co., St. Louis, for six 900-horsepower and three 600-horsepower boilers, the former for the blast furnace installation and the latter for the open hearths. A contract has been placed with the Westinghouse Electric & Mfg. Co. for switching equipment for the tin mill power house to handle the increased power development.

* * *

FRANK FOUNDRIES CORP., Moline, Ill., has outlined a large building program for this year, to provide additional capacity. At the No. 1 plant in Davenport, Iowa, additional property has been bought to provide a cleaning room, machine shop and warehouse, which will increase molding and core capacity 50 per cent. At the No. 2 plant at Moline two acres has been bought on which a No. 3 plant will be built, one-third to be done this year. This will include a foundry 100 x 200 feet a core room 60 x 80 feet, a cleaning room 60 x 60 feet, sand storage and other departments.

* * *

ATLAS DROP FORGE CO., Lansing, Mich, have been authorized by stockholders to declare a 100 per cent dividend and a 10 per cent cash dividend and have declared a 50 per cent stock dividend and the full 10 per cent cash dividend. This will increase capitalization from $1,000,000 to $1,500,000. R. H. Scott is president, J. P. Hopkins vice president and general manager, E. W. Goodnow secretary and B. L. White treasurer.

* * *

ALLIS-CHALMERS MFG. CO., Milwaukee, Wis., has incorporated as Allis-Chalmers (France), with headquarters at 3 rue Taitbout, Paris, to handle business in continental Europe. H. I. Keen, who has been manager of European sales through the company's district office in Paris, will be managing director of the new organization. For some years the company has maintained an office in London, 728 Salisbury House, London Wall, F. C. 2.

* * *

NOVELTY STEAM BOILER WORKS CO., manufacturer of tanks has bought the plant, property and machinery of the Chesapeake Iron Works, five acres on the water front, at Westport, a suburb of Baltimore, and will move its business there. Claud C. Lanman, Halethorpe, Md., is president and general manager, Raymond J. Kitchen, Catonsville, Md., vice president and secretary and Henry D. Meacham, Catonsville, treasurer and purchasing agent.

* * *

LYNCHBURG FOUNDRY CO., Lynchburg, Va., has elected L. W. Walsh, formerly treasurer and purchasing agent, as president as announced by IRON TRADE REVIEW Feb. 18 has been made secretary-treasurer, Henry E. McWayne, vice president and Miss Lay S. Eanes assistant secretary-treasurer. Fred W. McWayne, for ten years director and for six years general manager, has resigned. Henry E. McWayne and E. H. Hancock were elected to vacancies on the board of directors.

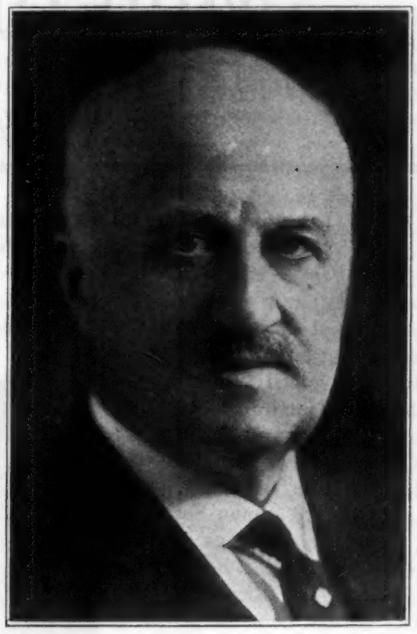
Industrial Men in the Day's News

Samuel Alfred Taylor, New Head of Mining and Metallurgical Engineers

A LOYAL son of the Keystone state for over half a century, he has done much toward the development of the various natural resources of Pennsylvania.

STARTING as a draftsman with Carnegie Steel Co. in 1887, he has specialized in coal and allied activities for 25 years. Today he is an executive of several large fuel interests.

LOSS of a position in the panic of 1893 proved fortunate. It caused him to start out for himself as a consulting civil and mining engineer, a career which has brought him renown.



SERVICE with a capital S. That has been the dominant characteristic of the life and career of Samuel Alfred Taylor, a consulting engineer of Pittsburgh, who last week was elected president of the American Institute of Mining and Metallurgical Engineers, as announced briefly in last week's issue of IRON TRADE REVIEW. Naturally retiring in disposition, honors have rather sought the man instead of the man seeking honors, for his duties and activities for the betterment of his fellow men have brought him many times into the spotlight for deserved praise and credit. That his activities have been diversified is attested by a glance at the objects of his energy—structural drafting, coal mining, coke manufacturing, waterworks, sewage disposal plants and other engineering projects, and railroad, street and road improvements.

His service was quickly extended beyond his own borough of Wilkinsburg, and he was for many years borough engineer for some 10 municipalities in western Pennsylvania. He has served on various national commissions pertaining to mining matters, in addition to having served on a number of state commissions of public interest. He has been one of the consulting engineers of the United States bureau of mines since the bureau was established. He also acted as technical advisor to Dr. Harry A. Garfield, United States fuel administrator during the World war, along with Rembrandt Peale of New York representing the coal operators and John White of the United Mine Workers representing the miners. During 1918 his services were loaned to the Canadian government to assist that country in administration of its fuel matters, then under the direction of C. A. McGrath, fuel administrator, and aided in surveying a number of that country's problems in Nova Scotia and New Brunswick. He served with the United States coal commission in 1919 in adjustment of the labor scale, and also was on the board of engineers making the valuation of coal lands and properties for the coal commission in 1922.

North Versailles township, now East McKeesport, Pa., 10 miles east of Pittsburgh, was the birthplace of Mr. Taylor Oct. 24, 1863. He was educated in the public schools of his native township, attended the Polytechnic institute of Allegheny City, Pa., and in the class of 1887 graduated from the Western University of Pittsburgh, now the University of Pittsburgh, with a degree in civil engineering. Fully 32 years later, in 1919, he received the honorary degree of doctor of science from his alma mater.

Just out of college in July, 1887, he began his industrial career as a draftsman in the structural steel department at the Homestead works of Carnegie Steel Co., then under the management of Julian Kennedy. In September, 1888, he resigned to become assistant engineer of branch line construction for the Pennsylvania railroad and established headquarters at Greensburg, Pa. In this position he remained until the panic in October, 1893, caused that department to be temporarily disbanded. Then commenced his practice as a civil and mining engineer in Pittsburgh. For many years he conducted a general practice in engineering, designing and building waterworks.

After being engineer over a period of years for a number of coal companies in Pennsylvania, West Virginia, Ohio and Kentucky, about 1900 he and associates

became interested in the development of coal properties, opening up a number of mines in the district. Since then he has devoted much time to coal mining and its allied industries, both as consulting engineer and in a managerial capacity. Today he is president of the Pawva Coal Co., Pittsburgh; vice president, treasurer and director of the Kehota Mining Co. Inc.; director of the Short Creek Coal Co., director of the Beaver Creek Consolidated Coal Co.; president and director of the Central National bank, Wilkinsburg, Pa., and director of the Monongahela Water Co. and the North Strabane Water Co.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

FREDERICK I. SANDERSON elected first vice president of the Wellman-Seaver-Morgan Co., Cleveland, was born and educated in England. For the last 21 years he has been associated with the Wellman company. He first joined the staff of the late Col. J. T. North, the nitrate "King," who had large and varied interests in Chile, and in 1904 joined Jeremiah Head & Son, at that time European agents of Wellman-Seaver-Morgan Co. He also acted as secretary of the Otis Steel Co., Ltd., Cleveland then controlled in England. In 1905 when the British company, Wellman, Seaver & Head, Ltd. was formed, he became the first secretary, was elected director in 1913, and became managing director in 1917. Later when this interest was merged into the Wellman Smith Owen Engineering Corp. Ltd., he became a director and commercial manager. For many years he has handled the European affairs of the Wellman companies and is a director of Wellman Smith Owen. He was one of the original 100 members of the American club in London.

Fred Stadelman who has become a director and secretary of the company, has been with the Wellman company for 20 years and formerly was manager of the New York office. Prior to these connections he was with the Brown Hoisting Machinery Co. He graduated from Columbia university, New York, in engineering and also studied law at the New York Law school. Mr. Stadelman is a member of the Engineers' Club of New York and was one of the organizers of the Machinery club there.

* * *

Theodore Kauffman, president, S. Obermayer Co., Chicago, manufacturer of foundry supplies, left Feb. 20 for a cruise through the West Indies.

* * *

William H. Smith has resigned as engineering counselor of Ford Motor Co., Detroit, to open offices there in a consulting engineering capacity.

* * *

Robert J. Beler recently joined the Pittsburgh sales office of Foote Bros.

FREDERICK I. SANDERSON

Gear & Machine Co., Chicago, as assistant to the district representative, W. G. Kerr.

* * *

Henry F. Pratt has been appointed sales manager of the American Oxygen Service Co. with headquarters in New York. He formerly was eastern manager for the Compressed Gas Corp.

* * *

John Gray Buchanan is now senior partner of William Jacks & Co., London, large pig iron, steel and metal merchants. Former associates of Mr. Buchanan were the late William Jacks and the late Bonar Law, M. P. Mr. Buchanan was deputy-chairman of the London chamber of commerce and is a member of the advisory committee to the department of overseas trade and other government committees. He is a native of Glasgow, Scotland, and has been an active worker for many London and Scottish associations. He has also been active with many philanthropic institutions.

* * *

F. M. Burt, formerly enamel specialist of Trumbull Steel Co., Warren, O., and prior to that time with the Carborundum Co., Perth Amboy, N. J., has joined the sales force of the Massillon Refractories Co., Massillon, O. He will have charge of vitreous enameling operations at Pittsburgh.

* * *

Morris Ireland, just appointed branch manager at Cleveland for the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., formerly was manager of the industrial section of that office. He succeeds John Andrews Jr., at Cleveland, the latter having been transferred to manager of the Detroit branch.

* * *

S. D. Moxley has been promoted to chief engineer of the American Cast Iron Pipe Co., Birmingham, Ala., succeeding James W. Moore, recently made general works manager. The new chief engineer, a graduate of the University of Alabama, has been with the American company three years, and formerly was with the Tennessee Coal, Iron & Railroad Co.

Jesse W. Stalcup has been made auditor of the American Cast Iron Pipe Co., succeeding C. O. Hodges, promoted to treasurer. Mr. Stalcup started with the company in 1908 in the laboratory.

* * *

Dr. Thomas Thornton Read, of Washington, mining engineer and director of the safety service of the United States bureau of mines, has been chosen assistant secretary by the board of directors of the American Institute of Mining and Metal-

lurgical Engineers, with headquarters in New York. Dr. Read is prominent in mining educational circles, having taught at the University of Wyoming, Columbia university, Colorado college, and Pei Yang university of Tientsin, China. He also has acted as associate editor of the *Mining and Scientific Press*, San Francisco, and is author of numerous treatises on mining and metallurgical subjects. He spent a number of years in China studying its mineral resources. In 1916 he became metallurgical engineer for the New Jersey Zinc Co., and was with the estimates and requirements branch of the army ordnance department in 1918.

* * *

C. T. Newman, formerly with Parmalee-Dohrman Co., has been retained by the Central Sheet Metal Works, Los Angeles, to study manufacturing ventilation problems.

* * *

Stewart M. Marshall and Frank L. Estep of Perin & Marshall, New York, engineers, have returned from a trip to Russia devoted to an investigation of the iron and steel industry in that country.

* * *

William H. Van Dieson, formerly of A. E. Norton, Inc., New York, structural erector, has become a member of the newly organized firm of consulting engineers, Van Dieson & Downie, 1440 Broadway, that city.

* * *

E. A. C. Baum has been appointed assistant western representative of steel sales for Henry Disston & Sons, Inc., Philadelphia, steel saw makers, with offices at Chicago. Mr. Baum formerly was metallurgical engineer with the Illinois Tool Co.

* * *

C. C. Ostrom, for some time agent in the Philadelphia district for Vulcan Mold & Iron Co., Latrobe, Pa., has been elected president of the Foster-Merriam Co., Meriden, Conn., and on March 1 will give up his office in Philadelphia.

* * *

A. S. Anderson, formerly secretary of the Terre Haute Malleable Mfg. Co., Terra Haute, Ind., has been elected president of the Standard Malleable Casting Co. that city, succeeding Emil J. Fischer, who has resigned and moved to Chicago to engage in selling iron and steel products there. E. D. Halsey, production superintendent of the Terre Haute company has been promoted to secretary to succeed Mr. Anderson.

* * *

J. E. Heeter has been appointed manager of the Philadelphia office of Diamond Power Specialty Corp., manufacturer of soot blowers. Mr. Heeter succeeds M. J. Miller, transferred to Detroit territory, with whom he has been associated for many years in the Philadelphia district.

* * *

Fred W. Lorentz has joined the sales force of Philip T. King, New York, dealer in used cranes. Mr. Lorentz was one time associated with the New Jersey Foundry & Machine Co., New York, and for seven years was secretary and treasurer of the Union Iron Works, Hoboken, N. J.

* * *

H. H. McCarty has resigned as instructor in the practical mechanics department of Purdue university, Lafayette, Ind., to become experiment engineer in the automotive division of the United States Aluminum Co., Cleveland. Mr. McCarty was engaged in research work for General Motors Corp. before going into education work.

* * *

M. Schiller has just been elected vice president in charge of accounts and purchases of the Superheater Co., New York, designing engineer and manufacturer of steam superheaters. Mr. Schiller joined the company in 1910 when it was organized as the Locomotive Superheater Co.

W. F. Jetter has become treasurer and assistant secretary of the company, and Bard Browne was appointed assistant to the vice president in charge of sales and service. Mr. Browne joined the staff in 1914 and has served in various engineering, sales and service capacities. T. F. Morris has been appointed assistant secretary and assistant treasurer.

Fuel Consumption Shown by Recent Survey

(*Concluded from Page* 546)

said that bentonite has excellent bonding properties but its cost, due to transportation from Wyoming, was prohibitive for extensive use. Equipment for testing molding sand was described in a paper "Use of Standard Tests for Molding Sands," by H. Ries, professor of economic geology, Cornell university, Ithaca, N. Y.

Institute of metals division held meetings on Monday and Tuesday afternoons and Wednesday morning and afternoon, duscussion being confined to the nonferrous metals and alloys. The annual lecture of this division was held on Tuesday afternoon, Paul D. Foote, physicist, bureau of standards, Washington, addressing the members on "Relation Between Metallurgy and Atomic Structure." At a dinner meeting at the Harvard club on the same evening the metals division conducted its annual business session. Paul D. Merica, research engineer, International Nickel Co., New York, was elected chairman for the coming year.

Tribute to Dr. Henry Marion Howe was paid at the Howe Memorial lecture on Monday afternoon. President J. V. W. Reynders, presided and introduced the lecturer, William Campbell, professor of metallurgy, school of mines, Columbia university, New York, the subject of whose lecture was "Twenty-five Years in Metallography." Professor Campbell had been associated with Dr. Howe.

Official business of the institute was conducted at the annual business meeting held on Tuesday morning. Formal reports of officers and committee chairmen were read and approved. Following the report of the tellers, new officers were declared elected as shown in the box on page 545. It was announced that the fall meeting of the institute would be held at Pittsburgh. A proposal to nominate two or more candidates for each elective office in the organization was unanimously rejected.

The annual banquet and dinner-dance was held at the Waldorf-Astoria hotel on Wednesday evening with W. A. Nelson, ex-state geologist of Tennessee and instructor in school of geology, University of Virginia, was toastmaster. More than 600 attended. As retiring president, J. V. W. Reynders made a plea for endowment for research. Samuel A. Taylor, newly elected president was introduced. Short addresses were made by T. C. Denis, superintendent of mines, Province of Quebec, Can.; Dr. H. Foster Bain, secretary of the institute, New York; G. F. Davison, president American Society of Civil Engineers and head of the Gulf Refining Co., Pittsburgh; and Scott Turner, director of the bureau of mines, Washington.

Award of the Robert W. Hunt medal was made to C. L. Kinney, open-hearth superintendent, Illinois Steel Co., Chicago, for his paper "Economic Significance of Metalloids in Basic Pig Iron in Basic Open-Hearth Practice." This was the first time the Hunt medal had been awarded. Award of the James Douglas medal was made to J. M. Callow, construction engineer and president, General Engineering Co. Inc., New York, for distinguished service in concentration of ores. S. P. Kinney, bureau of mines, Minnesota, was not able to be present to receive the J. E. Johnson Jr., award in recognition of his work on blast furnaces.

European Steel Shows More Confidence

(*Concluded from Page* 541)

Slovakia, the Balkans and Spain. In Belgium, business is fairly well maintained. The resumption of activities at the Charleroi plants being only gradual, little effect has been noted on prices. Orders are now beginning to be taken in this district but with 10 to 12 weeks delivery. Since the plants have been at a standstill for 7 or 8 months, some time must elapse before everything is in working order.

Current export quotations on Belgian, Luxemburg and French material are as follows, all f. o. b. Antwerp. foundry pig iron, 2.5 to 3 per cent silicon, £3 2s ($15) per ton; basic bessemer billets, £4 9s ($21.50); basic bessemer plates, £5 10s ($26.60); galvanized sheets, No. 24 gage, £21 2s 6d ($103); open-hearth boiler plates, £7 3s 6d ($33.75); merchant bars, £5 7s ($26); open-hearth boiler plates, £7 3s 6d ($34.75); merchant bars, £5 7s ($26); wire rods, £5 17s 6d ($28.50); plain wire, £8 3s ($39.50); galvanized wire, £10 11s ($51.10); wire nails, £8 12s 6d ($41.80).

Export business in Germany has slightly improved, chiefly owing to the withdrawal of French works from the market. Foreign orders have been obtained for bars, plates and pipe. Recent sales from Germany to America included 3000 tons of pig iron, 1000 tons of ingots, and 3000 tons of German bars and Belgian shapes. German prices are slightly higher than other continental prices except on beams and galvanized products. The Stahlwerks Verbanda has captured part of a rail order for Finnish railroads and obtained 10,500 tons, while 7500 tons went to the Acieries d'Angleur and John Cockerill in Belgium.

In France, new export orders are not as numerous as they have been of late, but mills are booked well into the year and show no uneasiness in that respect. Prices are firm and in view of higher coke prices a rise in pig iron quotations is expected. However, iron and steel makers are concerned with the delay of parliament in balancing the budget and with the resulting trade uncertainty.

Belgian Steel Prices Are Lower

BRUSSELS, Feb. 12.—(*European Staff Service*)—Resumption of work in the Charleroi district and the tapering off in demand has caused Belgian metallurgical prices to slip slightly. The Charleroi mills have been shut down for several months on account of labor troubles. Operations were only recently resumed and competition from this source will be keen until tonnage has been accumulated. Hainaut mills are offering bars as low as £5 6s ($25.65) which is somewhat lower than Luxemburg mills care to go.

Pig iron is quiet. Blast furnace operators report a slowing down in export demand. Despite the fact that several furnaces have been blown in recently in the Charleroi district, purchases of manganese ore have not increased. Imports of manganese ore is the best blast furnace index as Belgium is dependent upon outside sources.

Franc $0.045

Semifinished steel products continue to be sold for export. Basic bessemer blooms are quoted at £4 2s ($19.80) f. o. b. Answerp. Billets bring £4 8s 6d ($21.45). The demand for sheet bars is brisk and the price of £4 15s (22.00) is easily maintained.

Structural shapes are quoted at £2 18s ($24.75) per metric ton f. o. b. Antwerp. Prices of wire products vary according to districts. Wire drawers and nail manufacturers have done less to organize their market and establish a price policy than other departments. Their independent attitude is reflected in the present lack of stability of prices. Plants near Antwerp appear to have somewhat the advantage over manufacturers in the Hainaut district, due to the former's proximity to the port. Rail freight rates are high in Europe and manufacturers who are dependent on export business for their livelihood are greatly handicapped if long rail hauls are necessary to deliver their products to seaports.

French Production at Prewar Rate

PARIS, Feb. 12.—(*European Staff Service*)—Production of pig iron in France for 1925 amounted to 8,471,800 metric tons, compared with 7,651,972 tons in 1924, an increase of nearly 11 per cent. The highest monthly production was recorded in December with 748,375 tons. The number of blast furnace stacks blowing Dec. 31, 1925, was 147. There were 43 furnaces under repair or in course of construction, and 29 furnaces in working order. The number of stacks in operation rose gradually from 133, Jan. 1, 1925. Out of the year's total tonnage, 6,206,330 tons were basic bessemer pig iron, 1,620,592 tons were foundry pig iron, 379,586 tons pig iron for the refining of steel, 222,870 tons special grades, and 42,422 tons acid besseme rpig iron.

It is interesting to note that if the production of the recovered portions of Lorraine, amounting to about 3,000,000 tons, is deducted from the 1925 total, the output of the furnaces operating within France's prewar boundaries amounted to about 5,500,000 tons, as against 5,207,000 tons in 1913. The production of basic bessemer pig iron during 1925 increased about 1,000,000 tons in comparison with the output of the same grade of pig iron the preceding year. Production of foundry pig iron was about the same.

Production of steel ingots and castings in 1925 was 7,415,072 metric tons, against 6,906,502 tons in 1924, or 7½ per cent gain. Of this production, 7,265,525 tons were ingots and 149,547 tons were steel castings.

The 1925 output included 5,149,707 tons of basic bessemer steel, 2,102,878 tons of open-hearth steel 77,889 tons of acid bessemer steel, 72,566 tons of electric steel, and 12,032 tons of crucible steel. It is to be noted that in 1925 the output of basic bessemer steel increased by about 645,000 tons in comparison with the preceding year's production, whereas the output of open-hearth steel decreased by about 140,000 tons.

The following table shows production figures of French iron and steel month by month, compared with monthly averages of previous years, in metric tons:

Monthly average	Pig iron	Steel ingots and castings
1913	433,900	390,580
1922	435,715	377,875
1923	452,650	425,795
1924	637,660	575,540
1925	705,985	617,920
1925		
January	669,352	608,146
February	636,934	569,007
March	688,871	607,076
April	686,130	586,977
May	706,264	596,309
June	703,439	599,857
July	724,164	625,344
August	712,547	616,730
September	716,613	631,726
October	739,343	668,300
November	739,768	647,099
December	748,375	658,506
Total for 1925	8,471,800	7,415,072

German Exports Lower

Berlin, Feb. 12. — (*European Staff Service*)—Germany's exports of iron and steel products in November, 1925, amounted to 321,694 metric tons, compared with 358,831 tons in October, 308,040 tons in September, 304,492 tons in January, 1925, and 262,416 tons in November, 1924. The figure for November represents a decrease of 37,137 tons, compared with the exports for the preceding month, when the shipments were the highest recorded in any month during the past five years.

Among the principal items exported in November were 65,982 tons of bars and bands, 32,637 tons of pipe, 32,207 tons of rolled and drawn wire, 31,545 tons of scrap, 23,634 tons of plates and sheets, and 20,927 tons or pig iron.

German imports in November, 1925, were practically on a level with those for November, 1924. Imports in November were 94,124 metric tons, compared with 100,408 tons in October, 124,132 tons in September, 260,525 tons in January, 1925, and 94,641 tons in November, 1924.

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

PASADENA, CALIF.—Foss Heating & Sheet Metal Co., 34 East Holly street, has been incorporated with $25,000 capital to manufacture gas furnaces, by W. E. Foss president, J. W. Anger general manager and R. T. McCallum, secretary.

BOULDER, COLO.—Neverslip Chain Co., H. H. Donnelley manager, is completing its organization and will establish a plant for the manufacture of steel chains.

BRIDGEPORT, CONN.—Weed Chain Co., State street, will build a 1-story addition. General contract to Aberthaw Construction Co., Boston.

HARTFORD, CONN.—Donegan Auto Body & Specialty Co., 339 Trumbull street, manufacturer of auto bodies, will rebuild its burned plant.

TAMPA, FLA.—Tampa Sheet Metal Works has been incorporated with $50,000 capital by G. H. Leavitt, 5908 Central avenue and others.

ATLANTA, GA.—Atlantic Sheet Metal Works Inc., Marietta street, has had plans made for a 1-story addition.

ROME, GA.—John M. Beery and E. P. Grant are forming company with $100,000 capital to build plant and establish a stove foundry.

CHICAGO—Register Guide Corp., 160 North LaSalle street, has been incorporated with $5000 capital to manufacture printing machines by A. E. Cohen and E. S. Blanck.

CHICAGO—Commercial Auto Body Builders, 3245 Archer avenue, is having plans drawn for a 1-story plant 136 x 150 feet, by Sailor & Hoffman, 718 West Sixty-third street.

CHICAGO—Morton Mfg. Co., 5133 West Lake street, railroad supplies, will build a 2-story plant 85 x 220 feet. James Burns, 64 West Randolph street, is architect.

CHICAGO—Woodworkers Tool Works, W. M. Knourek, president, 222 South Jefferson street, has bought a site at West Washington boulevard and Willard court for a new plant.

CHICAGO—Mid City Mfg. Co., 1228 South Western avenue, has been incorporated with $100,000 capital to manufacture electric appliances by Elmer R. Talbot, Jean Talbot, M. H. Talbot and Bruce R. Marr.

CHICAGO—A. J. Poppham Inc., 53 West Jackson boulevard, has been incorporated with $10,000 capital to manufacture steam boilers, heating and ventilating equipment by George E. Colburn, Lida E. Poppham and John T. Beynon, suite 2005, 58 East Washington street.

CHICAGO—Crown Fixture Co., 2419 West Fourteenth street, has been incorporated with $10,000 capital to manufacture gas and electric light fixtures and supplies by Samuel Sher, Sylvia Sher, Ben Sher and Pearl Sher. Lewis & Lewis, Ashland block, are correspondents.

CHICAGO—Power Electric Supply Co., 426 South Dearborn street, has been incorporated with $30,000 capital to manufacture electrical merchandise by Lawrence J. Buckley, Edward C. Baumann, Lewis H. Maine, William B. Hardin and Helen Jacobi. Mills & Howe, Monadnock block, are correspondents.

CHICAGO—Cummings Casting Co., 4533 Patterson avenue, has been incorporated with $20,000 capital to conduct a gray iron and semisteel foundry by Daniel J. Lynch, T. A. Cummings Jr. and Margaret L. Cummings. Coburn, Kearney & Coburn, 77 West Washington street, are correspondents.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

CHICAGO—Hamilton-Ross Factories Inc., 736 Tilden avenue, has been incorporated with $300,000 capital to manufacture lamps, shades and iron furniture by Irwin E. Levinson, Lawrence H. Levinson and Benjamin Schoenberg. Levinson, Hoffman & Rein, 38 South Dearborn street, are attorneys.

CHICAGO—Johnson Motor Products Co., 308 North Sheldon street, has been incorporated with $15,000 capital and 450 shares no par value to manufacture machinery, fixtures, mechanical and electrical devices by Walter C. Beaver, H. M. Johnson, and Jay M. Johnson. Charles M. Hills, 1523 Monadnock building, is correspondent.

FULTON, ILL.—Patent Novelty Co., W. J. Reiman president, has let general contract to A. G. Hoese, Fulton, for a 2-story factory 90 x 140 feet.

HARVEY, ILL.—Chicago Steel Car Co. has been incorporated with $100,000 capital to manufacture railroad cars by Francis H. Uriell, Virgil M. Hencher and Arthur Fisher. Butler, Lamb, Foster & Pope, Monadnock block are correspondents.

MOLINE, ILL.—Frank Foundries Co. has bought two acres adjoining its plant at First avenue and Twenty-first street, on which additional buildings will be erected. Equipment will include a 60-foot traveling crane for material handling.

OAK PARK, ILL.—Hedstrom Mfg. Co., 246 Lake street, has been incorporated with 150 shares no par value to manufacture automobile bumpers and accessories by A. E. Hedstrom, Albert S. Hedstrom, and Charles A. S. Hedstrom. Van Schaik & Stevens, 1034 Otis building, Chicago, are correspondents.

WAUKEGAN, ILL.—Ferro Steel & Iron Co., 27 West Water street, has been incorporated with $10,000 capital to manufacture iron and steel products by Fred H. Nemitz, Kon Hadyschski and Joseph M. Blakemore. Joseph A. Jadrich, 1700 Sheridan road, is correspondent.

WAUKEGAN, ILL.—Luke & Co. Inc., 1325 Belvidere street, has been incorporated with $15,000 capital to operate a machine shop by Robert Luke, Fred W. Luke, Henry P. Luke and Ernest Luke. Charles E. Jack, First National Bank building, Waukegan, is correspondent.

ELKHART, IND.—Henry Weis Mfg. Co., Atchison, Kan., manufacturer of sheet metal products, W. M. Weis, president, will remove its plant to Elkhart about June 1, a new plant to be built.

FORT WAYNE, IND.—Dudlow Mfg. Co., G. Jacobs general manager, has let a contract to street, for a 1-story wire mill on North Wall Buesching Hagerman Co., 401 East Superior street.

INDIANAPOLIS—India Refining Co., J. H. Graham president, Lawrenceville, Ill., is considering sketches for a motor repair and paint shop.

DAVENPORT, IOWA—Blackhawk Foundry & Machine Co., 323 Clark street, will build a 2-story foundry 100 x 110 feet at Clark and Hobson streets.

DAVENPORT, IOWA—Dewey Portland Cement Co., Kansas City, Mo., has bought 215 acres near Linwood, a suburb, and will build a plant with capacity of 1,000,000 barrels of cement per year.

DAVENPORT, IOWA—American Brake Co. has been incorporated with 4000 shares of $100 each, 5000 shares at $10 and 50,000 shares at $1 each to manufacture friction brakes by Edgar C. Erickson, R. R. Blank and Max Brown.

JEWELL, IA.—Chicago & Northwestern railroad, 226 West Jackson boulevard, Chicago, will build roundhouse to cost $25,000.

MARSHALLTOWN, IA.—The Marshall Canning Co., is planning a warehouse at Fourth avenue and Eighth street to cost $30,000.

MUSCATINE, IA.—A $100,000 bond issue has been voted for a new municipal light plant.

LOUISVILLE, KY.—Byllesby Engineering & Management Corp., owned by the Standard Gas & Electric Co., has been given contract for government dam in Ohio river here in connection with 135,000 horsepower hydro-electric development. Same company is building power house for Louisville Hydro-Electric Co.

NORTHVILLE, KY.—Kentucky Electric Power Corp. has given contract to J. G. White Engineering Corp., New York, to design and construct electric power station of 5000-kilowatt capacity. It will use pulverized fuel, high pressure boilers and turbines and will be designed for future extensions.

MONROE, LA.—Taylor-Johnson Mfg. Co., H. T. Taylor president, 3003 Lovers Lane, recently organized is planning a plant to manufacture automobile lubricators and other specialties.

BALTIMORE—Utility Mfg. Co., W. B. Wills, manager, 1824 Lancaster street, will build a 2-story addition to enlarge its capacity for producing wire goods.

BALTIMORE, MD.—Republic Boiler & Radiator Co., M. H. Landis president, Union avenue, Woodbury, Md., is making plans to enlarge plant and add to equipment to increase capacity 50 per cent.

TOWSON, MD.—Black & Decker Mfg. Co., S. D. Black president, will build an addition 100 x 200 feet to increase production of electric drills and other devices.

HOPEDALE, MASS.—Draper Corp., manufacturer of textile machinery, is making extensive alterations to its foundry from plans by F. P. Sheldon & Sons, 1008 Hospital Trust building, Providence, R. I.

WEST SPRINGFIELD, MASS.—New England Smelting Co., 220 Union street, is building a 1-story addition from plans by John W. Donahue, 105 Bridge street, Springfield, Mass.

BAY CITY, MICH.—Bay City Dredge Works Inc., W. S. Ramsay, 2601 Center street, will

(*Continued on Page* 559)

Jobber Buying Volume Is Steady

Market Experiences Some Dullness—Prices Firm and Unchanged

DULLNESS is beginning to creep into a warehouse market that has been gaining in activity for many months,. Quicker mill deliveries, adverse weather conditions and a general softening in demand is reflected in sales barely holding the January level. Prices are firm and unchanged, except for a stiffening of sheets in New York.

Warehouse orders in the New York metropolitan district are more numerous, but are small and trading is no more than holding its own. Black and galvanized sheets have stiffened, the 4.35c and 5.35c prices on these two grades having virtually disappeared. Lengthening mill deliveries is the principal factor. One of the larger eastern mills is refusing to take any more first quarter business. Prices are easier but unchanged. There is a good demand from the oil fields.

Buffalo warehouses are having a run of orders that is only fair, but perhaps a trifle above the sales of the corresponding period of 1925. Improved mill service on some items is cutting into warehouse sales. Plate business has picked up a little. Prices are firm and unchanged.

Warehouse business has slowed up considerably at Cincinnati for virtually all items. Jobbers attribute the dullness to adverse weather conditions. Prices continue firm. Demand for reinforcing bars and structurals is at its lowest ebb in several months.

The past ten days have developed a further slowing down in business at St. Louis iron and steel warehouses but shipments during the first two weeks of February indicate the total for that month will surpass the February, 1925, total. Demand at Cleveland is steady with sales numerous but small. Expected price revisions have not materialized, quotations being unchanged but soft. Philadelphia jobbers report February shipments equal January. Prices are firmer, particularly on bars. Jobbers now are caught up on deliveries following recent snowstorms.

Demand for warehouse products at Detroit is increasing. Operators report more and larger orders. Sheets, hoops and bands continue to feature buying. Heavy warehouse stocks are being maintained.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.05c
New York	3.24c
Philadelphia	2.90c to 3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	2.90c to 3.20c
St. Louis	3.25c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago, billet	2.60c
Chicago, rail steel	2.00c
Cincinnati	3.30c
Cleveland	2.40c to 3.10c
Detroit	3.15c
Los Angeles, C. L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	3.00c to 3.25c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c
Youngstown	2.50c to 2.60c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.05c
New York	3.34c
Philadelphia	2.70c to 3.05c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.10c to 3.20c
Cleveland, 3/16-inch	3.325c to 3.425c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.70c to 3.05c
Philadelphia, 3/16-inch	2.85c to 3.20c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.25c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	3.75c
New York	3.89c
Portland	4.25c
Philadelphia	3.50c
San Francisco	3.75c
Seattle	4.50c
St. Louis	3.60c
St. Paul	3.75c

NO. 28 BLACK SHEETS

Boston	5.25c
Buffalo	4.60c
Chicago	4.10c
Cincinnati	4.55c
Cleveland	4.10c
Detroit	4.25c
Los Angeles	4.75c
New York	4.40c to 4.50c
Philadelphia	4.65c
Portland	5.25c
San Francisco	4.75c
Seattle	5.50c
St. Louis	4.60c
St. Paul	4.35c

NO. 28 GALVANIZED SHEETS

Boston	6.25c
Buffalo	5.90c
Chicago	5.25c
Cincinnati	5.65c
Cleveland	5.25c
Detroit	5.50c
Los Angeles (corr. 28 ga.)	6.00c
New York	5.40c to 5.50c
Philadelphia	5.85c
Portland	6.25c
San Francisco	6.00c
Seattle	6.50c
St. Louis	5.70c
St. Paul	5.60c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	3.90c
New York	3.99c
Philadelphia	3.75c to 3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.85c
Detroit	4.30c
New York	4.49c
Philadelphia	4.00c to 4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	4.05c	4.55c
Buffalo	3.90c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.90c	4.40c
Detroit	3.85c	4.25c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....

*Rounds only.

COLD ROLLED STRIP

Boston, .100 inch, 500 lb. lots	6.30c
Buffalo	6.35c
Chicago	6.25c
Cincinnati	7.15c
Cleveland, over 500 lb. lots	5.95c
Detroit	6.20c
New York	6.25c
Philadelphia	6.25c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL
New York duty paid

Swedish, hollow drill steel	15.00c
Swedish iron bars, round	6.75c
Flats and squares	7.00c

WELDED PIPE
Discounts from warehouse, New York City
Standard Steel Pipe
WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—23	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6-inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 6
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Construction and Enterprise

(*Continued from Page* 557)

build a 1-story addition 50 x 110 feet.

BAY CITY, MICH.—Ira Lee Suction Cleaner Co., H. C. Weber manager, 515 Crapo building, is having plans made for the first unit of a manufacturing plant.

BENTON HARBOR, MICH.—Consolidated Boilers Inc., Chicago, is planning to move its plant here, through local chamber of commerce.

DETROIT—Chrysler Motor Corp. is building a 1-story addition with 6 acres floor space.

MINNEAPOLIS—The general contract has been let to the Nord Co., 2836 Eleventh avenue S. by the Schock Parlor Frame Co., for rebuilding 2-story, 62x182 furniture factory recently destroyed by fire, to cost $50,000. Bertrand & Chamberlin, 616 Northwestern Bank building, are the architects.

MINNEAPOLIS—The city council has awarded contract for special water castings to the American Brake Shoe & Foundry Co., Thirty-seventh avenue N E and University avenue, at $71.75 per ton and 8000 feet cast iron pipe to the American Cast Iron Pipe Co., 712 Plymouth building, at $0.925 per foot.

COLUMBUS, MISS.—F. M. Jacob, College street, will build a foundry and machine shop 25 x 100 feet and a 25 x 150-foot building for other operations. Will need hack saws, wire working machinery, forges and motors.

JOPLIN, MO.—Service Belt Co. has been incorporated with $50,000 capital to manufacture mining and mill machinery by Charles T. Orr and George J. Kusterer.

ST. LOUIS—American Carbonic Machinery Co. has been incorporated to manufacture refrigerating machinery by H. C. Hewitt, 320 Title Guarantee building, and others.

ST. LOUIS—Merrell & Co. Inc. has been incorporated with $90,000 capital to manufacture furnaces and heating equipment by R. Merrell, 6209 Washington street and others.

BEATRICE, NEBR.—J. H. Von Steen Co., manufacturer of fencing materials, will build a new plant to replace its fire loss.

BEATRICE, NEBR.—Bids will soon be taken by the J. H. Von Steen Co. for construction of a 2-story reinforced concrete and steel fence factory to cost $30,000.

NEW YORK—American Plaster Drill Co. has been incorporated with $20,000 capital to manufacture drills by E. L. Tanenbaum, M. A. Cutler and P. Cutler. S. J. Cutler, 50 Court street, is attorney.

NEW YORK—Barth Metals Co. has been incorporated with 50 shares at $100 each and

(*Continued on Page* 562)

Industrial Business Changes

HEALY-AEROMARINE BUS CO., INC., Keyport, N. J., has been formed by merger of Healey & Co., manufacturer of automobile buses and equipment, and the Aeromarine Plane & Motor Co. Inc., builder of airplanes. It will manufacture buses with direct front wheel drive.

* * *

Detroit Stoker Co. will remove its foundry from Bowling Green, O., to Monroe, Mich.

* * *

Commonwealth Steel Co. has removed its general office to its new office building at the works at Granite City,Ill.

* * *

American Institute of Steel Construction, Inc., has removed its executive offices to 285 Madison avenue, New York.

* * *

Meyer Body Co. Inc., has been organized to take over the business of the Meyer Wagon Works, 216 Elm street, Buffalo, N. Y.

* * *

Shriver Iron Works, Marysville, Tenn., has been organized to take over the business of the McNaughton Mfg. Co.

* * *

Struthers Furnace Co., Struthers, O., has appointed Domhoff & Joyce Co., Cincinnati, O., selling agent for its pig iron.

* * *

Butts & Ordway Co., 33 Purchase street, Boston, iron, steel and heavy hardware, has leased a plant at 40 Stanhope street and will remove its business to that location.

* * *

Quinn Richmond Oil Burner Co., New York, has changed its name to the United Oil Burner Corp.

* * *

Irvington Sheet Metal Shop, Indianapolis, Ind., is removing its plant from 5446 East Washington street to 426 South Meridian street.

* * *

Tonawanda Electric Steel Casting Co., 5 Mechanic street, North Tonawanda, N. Y., is the new name of the former Niagara Electric Steel Corp.

* * *

Belmont Iron Works, Royersford Pa., has assumed control of the Keystone Structural Co. at the same place and will enlarge the plant.

* * *

The Clifford Peterson Tool Co., 606 West Randolph street, Chicago, has puchased and will occupy the 4-story building at 123-25 North Jefferson street.

* * *

E. J. Woodison Co., Detroit, manufacturer of foundry equipment, has appointed Witters Foundry Supply Co., Milwaukee, its representative in that district, with office and warehouse at 488 Virginia street.

* * *

The Marshall & Huschart Machinery Co., 17 South Jefferson street, Chicago, has taken a 10-year lease on the corner store room of the Sharpless building, Washington boulevard and Jefferson street, Chicago, which it will occupy after alterations.

* * *

National Enameling & Stamping Co., Granite City, Ill., has opened a district sales office at Memphis, Tenn., 808 Fidelity Bank building, in charge of F. A. Ernst, formerly district sales manager at Chicago for the Falcon Steel Co.

* * *

Carle Machinery Co., Kokomo, Ind., has appointed the Miller Machinery Co., 211 Perry Payne building, Cleveland, its sales representative in that district. A. T. Miller is president and J. Maxwell sales manager of the Miller company.

* * *

Erie Foundry Co., Erie, Pa., has appointed Howard Terhune, 1120 Myrtle avenue, Plainfield, N. J., its district sales manager; L. F. Carlton, 549 Washington boulevard, Chicago, for that district, and R. B. McDonald, 408 Donovan building, Detroit, for that district.

* * *

Austin Western Road Machinery Co., Chicago, has established a branch office and warehouse at Front street and Exchange avenue, Memphis, Tenn., leaving a building 75 x 100 feet. J. M. Patterson has been placed in charge of the branch.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	33	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

TREADS AND COUPLINGS

Butt weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
4¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¼-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$ inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Chekered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

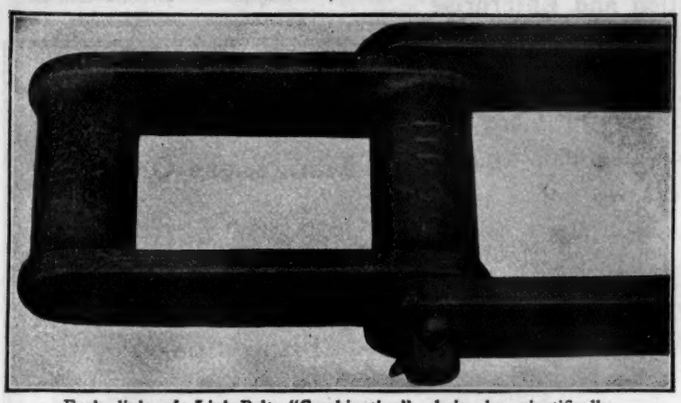
With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

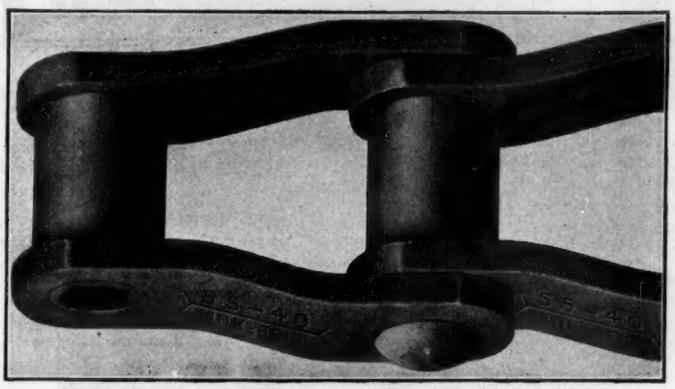
Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

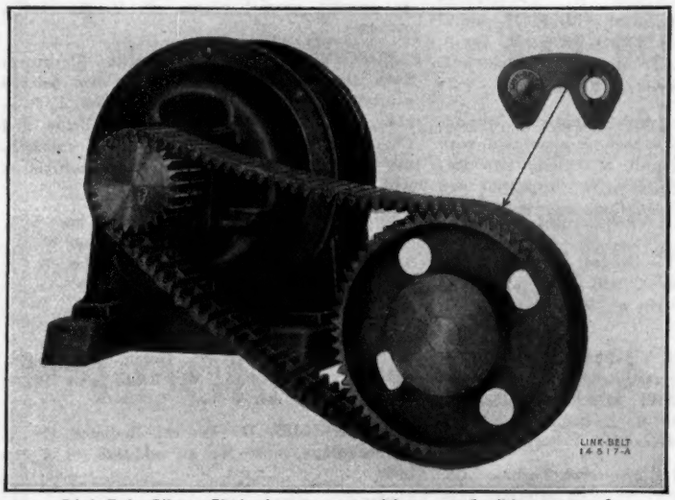
Additional extra ..... .20c



Each link of Link-Belt "Combination" chain is scientifically designed, and by combining malleable iron links, with tough medium-carbon steel side bars and pins, strength and durability are obtained at a comparatively low cost.



SS-40—ultimate strength 25,000 lbs., and SS-124—ultimate strength 60,000 lbs., offer strength—durability—long, reliable service.



Link-Belt Silent Chain is strong, positive, yet flexible means of driving machinery of every character. No loss or slip, quiet, smooth running, operates on short or long centers, not affected by atmospheric conditions. Drives from ½ to 10 H. P. now carried in stock.

Elevating, Conveying, or Transmission of Power will be more economical, efficient, and more lasting through the use of Genuine Link-Belt Chain. Our engineers will gladly co-operate with YOU in choosing the right type.

We Make Them All.

2583

LINK-BELT COMPANY

Leading Manufacturers of Elevating, Conveying and Power Transmission Chains and Machinery

PHILADELPHIA, 2045 Hunting Park Ave. CHICAGO, 300 W. Pershing Road INDIANAPOLIS, P. O. Box 85

Offices in Principal Cities

LINK-BELT

Conveying and Transmission Chains

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.50 to 10.00
Algerian low phosphorus, 52 to 54 per cent	9.75 to 10.00
Riff low phosphorus, 65 to 66 per cent	9.50 to 10.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.25 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.50
Algerian foundry and basic, 50 to 54 per cent	8.75 to 9.25

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent	nominal
Indian minimum 47 per cent	nominal
Caucasian, 53 to 55 per cent	
.... Washed, 41 to 43 cents c.i.f. tidewater	

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$17.50
Washed gravel, imported duty paid eastern tidewater, per net ton	17.50 to 18.00

Construction and Enterprise

(Continued from Page 559)

96 common no par value by O. Barth, R. Markowitz and L. Friedman. Myers & Sherwin, 229 Broadway, are attorneys.

NEW YORK—Accurate Metal Stamping Co., A. A. Buehring president, W. E. Bewley, vice president and secretary, 136 Liberty street, has been organized to operate a metal stamping business in a plant leased in Brooklyn.

NEW YORK—Friedman & Geis Co. has been incorporated with $10,000 capital to conduct a machinery business by F. Friedman, M. Friedman and M. Geis. M. M. Baker, 233 Broadway, is attorney.

NEW YORK—East River Scrap Iron & Metal Co. has been incorporated with $5000 capital by M. S. Eldrich, M. Savetsky and H. W. Hirschhorn. H. Vogel, 110 West Fortieth street, is attorney.

NEW YORK—Roethel Window Lift Mfg. Co. has been incorporated with $20,000 capital by J. H. Roethel, H. LeVyne and C. H. Hosung. Mackinstry & Kornfeld, 198 Broadway, are attorneys.

NEW YORK—Norton-Blair-Douglas has been incorporated with 100 shares common stock no par value by H. R. Norton, A. G. Blair and J. U. Douglas. Breed, Abbott & Morgan, 32 Liberty street, are attorneys.

NEW YORK—R. B. Stirling Machine & Structural works has been incorporated with $25,000 capital by R. B. and N. W. Stirling and E. I. Blair. Platt, Field & Taylor, 120 Broadway, are attorneys.

NEW YORK—Stein-Brill Corp. has been incorporated with $50,000 capital to manufacture machinery for chemical production by L. I. Brill, I. N. Klein and B. Frindell. D. C. Myers, 70 West Fortieth street, is attorney.

NEW YORK—Scientific Foundry Corp. has been incorporated with 100 shares common stock no par value by W. H. Wilson, J. A. W. Walker and G. J. Vallare. Barry, Wainwright, Thatcher & Symmers, New York, are attorneys.

NEW YORK—Automatic Motor Stop & Start has been incorporated with 150 shares $150 each and 1500 common no par value to manufacture motors by M. Stevenson, J. Good and E. J. Brown. Brown & Falkinburg, 342 Madison avenue, are attorneys.

NEW YORK—Stewart Warner Speedometer Corp., 1826 Diversey boulevard, Chicago, manufacturer of automobile accessories, has given a contract to Smith & Leo, 103 Park avenue, New York, for a 4-story addition 90 x 100 feet on its plant at 37 West Sixty-fifth street.

NEW YORK—Whitehead Metal Products Co. of New York has been incorporated with 3000 shares at $100 each and 1000 common, no par value by J. J. Whitehead, J. F. Thompson and W. B. Lawson. Sullivan & Cromwell, 49 Wall street, are attorneys.

POUGHKEEPSIE, N. Y.—Hudson River Foundry Co., G. Donaldson, manager, Lansing avenue, will build a 2-story addition 45 x 75 feet.

ROCHESTER, N. Y.—Yawman & Erbe Mfg. Co., manufacturer of filing cabinets and office equipment, is having plans made for a 3-story addition 60 x 120 feet.

ROCKVILLE CENTER, N. Y.—Berdron Corp. has been incorporated with $5000 capital to manufacture search lights by C. H. Berill, A. W. Waldron and F. G. Hooley. Hooley & Wilson, Rockville Center, are attorneys.

SALAMANCA, N. Y.—Salamanca Foundry & Machine Works has been incorporated with $60,000 capital to operate a foundry and machine shop by J. Walrath, W. M. Green and P. E. Luther. C. E. Congden, Salamanca, N. Y., is attorney.

SYRACUSE, N. Y.—Grouse, Hilds & Co., M. R. Russell engineer, will build a 2-story blacksmith shop addition at Seventh and Wolf streets.

TONAWANDA, N. Y.—Buffalo Wash Tray Works has been incorporated to manufacture concrete products with $150,000 capital by M. J. Blanchard and S. I. Schanzer. J. E. Barry, Buffalo, is attorney.

WELLSVILLE, N. Y.—Kerr Turbine Co. Inc. has been incorporated with $100,000 capital to manufacture turbine engines and motors by Lloyd H. Sisson, L. R. Wilsey and Jay H. Stevens.

WHITE PLAINS, N. Y.—Kennedy Oil Burner Corp. has been incorporated with $10,000 capital by H. J. Kennedy and E. N. Erickson. C. F. Hinman, New Rochelle, is attorney.

CINCINNATI—Dreses Machine Tool Co., 227 West McMillan avenue, radial drills and other machine tools, is building an addition for foundry use, with traveling cranes, 90 x 300 feet. The Austin Co., Cleveland, has the general contract.

CLEVELAND—Crucible Steel Castings Co., West Eighty-fourth street, will build a 1-story foundry 100 x 200 feet. George S. Rider Co., Century building, is architect.

DEFIANCE, O.—Defiance Automatic Screw Co., K. F. Serrick general manager, will build a 1-story addition 100 x 210 feet.

DOVER, O.—Greer Steel Co. is building an addition to double its facilities, adding 50,000 square feet.

LIMA, O.—Lima Architectural Iron Works, William S. East president, is having plans prepared for a 4-story plant 23 x 200 feet.

MARION, O.—Fairchild Engineering Co., H. B. Walker president, manufacturer of conveying machinery is planning a 1-story machine shop 60 x 65 feet and an office building.

PORTSMOUTH, O.—Portsmouth Stove & Range Co. is having plans made to double its present enamel plant. F. V. Knauss is manager.

PORTSMOUTH, O.—Portsmouth Structural Steel Co. has been incorporated with $50,000 capital by Fred M. Ruhlman, Maltby J. Ruggles Sr., S. R. Wolfe, Mark W. Selby and Charles E. Dowling. It will build a fabricating plant 80 x 80 feet for which equipment will be required.

SIDNEY, O.—Pioneer Body Co. has been incorporated with $150,000 capital by W. P. Anderson, O. F. Wright, V. E. Watkins, H. P. Murray and Wilson Kraft.

TOLEDO, O.—Reliable Welding Co. has been incorporated with $5000 capital by Richard Krebs, Pearl P. Green, William E. Orthwein, Richard J. W. Krebs and Willis C. Knisely.

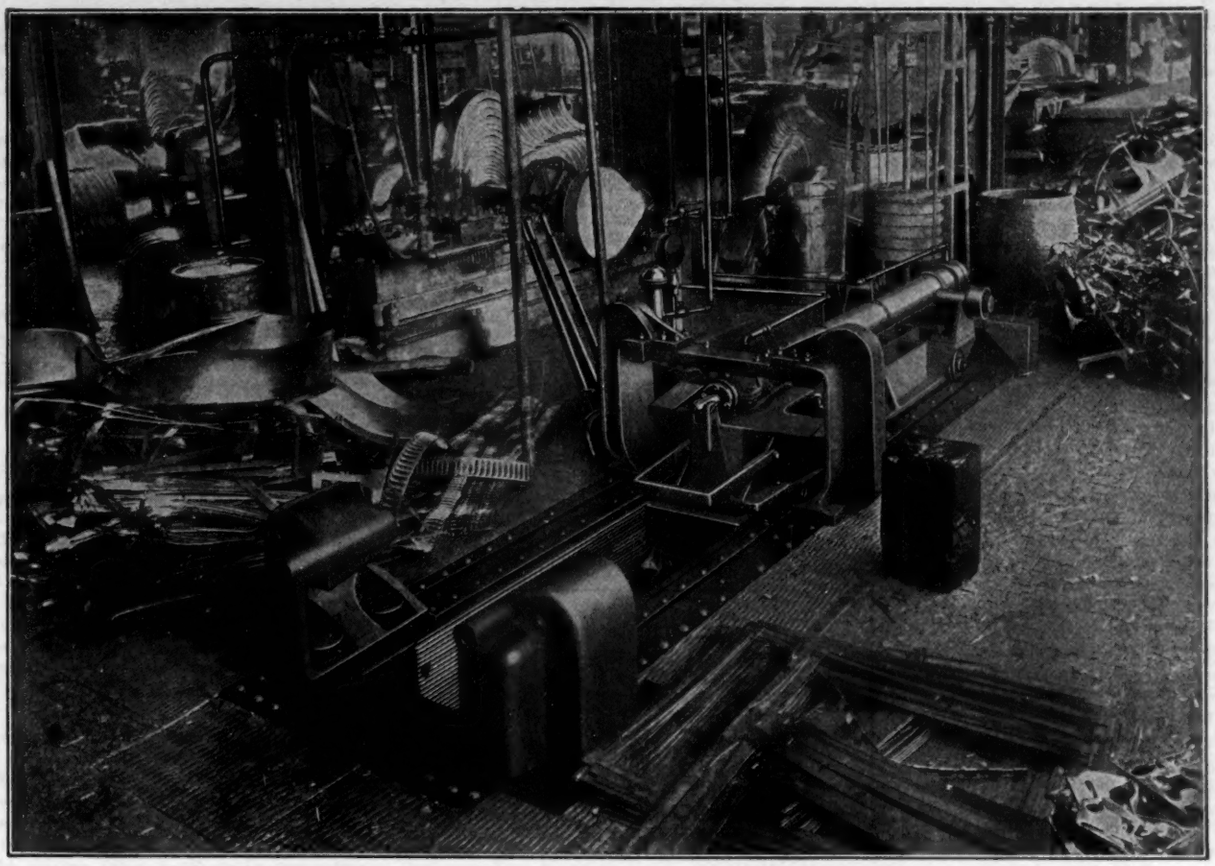
ZANESVILLE, O.—Federal Radiator Co. is having plans made for an addition 42 x 300 feet.

TULSA, OKLA—Mutual Tool Co., capital $60,000, incorporated by F. F. Myers, 603 South Quaker street, R. F. Garland and A. G. Williams, Bartlesville, Okla., to manufacture drilling tools for oil industry.

TULSA, OKLA.—Philmoor Co., capital $2,000,000, chartered by H. A. Campbell, Atlas Life building, W. L. Barnes and A. B. Honnold to engage in oil operations, including building of an oil refinery and pipelines.

TULSA, OKLA.—Petroleum Electric Co., installation engineer and distributor for Wagner Electric Co. and Lufkin Foundry & Machine Co., have recently opened a combination office and warehouse at 217 East Archer street. T. C. Williamson is manager.

TULSA, OKLA.—Frisco railroad plans shop building 90 x 190 feet to replace structure recently destroyed by fire. Orders have been



Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

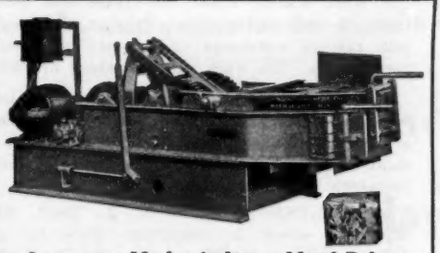
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

placed for new machinery including air hoists, abrasive, boring and lathe machinery. Considerable equipment was salvaged from fire. R. B. Spencer, Sapulpa, Okla., is master mechanic.

TULSA, OKLA.—Charles Page interests have been granted permit to erect a dam, 2880 feet long, 60 feet high and 16 feet wide at top across the Illinois river near Siloam Springs, Ark., as a part of a large hydro-electric installation. Machinery contracts are now being placed. P. A. Smith, Sand Springs, Okla., is purchasing agent.

ERIE, PA.—Perry Iron Works Co. will build a benzol building and a pump house in connection with its coke ovens. Contract has been given the Wilputts Coke Oven Corp.

PHILADELPHIA—Joseph Hyman & Sons, Livingston and Tioga streets, have let a contract to John N. Gill Construction Co., 121 North Broad street, for a 1-story machine shop.

PHILADELPHIA—Peerless Pennsylvania Co. Inc. has been incorporated with $50,000 capital to manufacture plumbing and heating appliances by Harry B. Lentz, 634 West Girard avenue, Philadelphia, H. Alfred Lentz, Edward F. Roberts and H. F. Weaver.

PITTSBURGH—Crist & Scholken Co., 543 Fourth avenue, manufacturer of sheet metal products, will build a new plant, contract to the Austin Co., Cleveland.

PITTSBURGH—Locomotive Stoker Co., 30 General Robinson street, A. L. Humphreys chairman of the board, will take bids soon for a 1-story addition, 30 x 180 feet. Hunting, Davis & Dunnells, Century building, are engineers.

PITTSBURGH—Penn Machinery & Equipment Co. has been incorporated with $5000 capital to manufacture machinery, parts and fittings by Horace F. Baker, 921 Ridge avenue, Pittsburgh, Harry S. Dunmire, M. V. G. Huston and William E. Schoyer.

PITTSBURGH—Robert Wray Inc. has been incorporated with $5000 capital to manufacture air springs and shock absorbers for automobiles, and other accessories by James W. Broughton, Elizabeth Wray and Sara G. Wray, 101 Beaver avenue, Sewickley, Pa.

PITTSBURGH—Southern Car Wheel Co., Commonwealth building, is making plans for its new plant at St. Louis, including two units 80 x 260 feet and 65 x 225 feet. Robert & Co., Bona Allen building, Atlanta, Ga., are engineers.

TOPTON, PA.—Topton Foundry & Machine Co., Nathan Kline, president, will start rebuilding its burned plant at once.

CHATTANOOGA, TENN.—Columbian Iron Works, M. C. Lofton secretary, 2501 Chestnut street, will build a 2-story office building. Contract to A. F. Hahn, James building.

CHATTANOOGA, TENN.—John C. Vance Iron & Steel Co., Carter street, has bought the foundry of the Lucey Mfg. Co., Grove and Nineteenth streets, and will enlarge its facilities.

KNOXVILLE, TENN.—Tennessee Tool Works, 942 Western avenue, is planning considerable extensions of its plant for production of traffic line marking machines.

FORT WORTH, TEX.—Texas Acetylene Co. has increased capital from $15,400 to $30,000 to provide for plant additions to plant for housing new welding machines for repair of automobiles and oil field tools.

HOUSTON, TEX.—Kettler Mfg. Co. has been incorporated with $10,000 capital to manufacture metal products by M. F. Kettler, 2614 Helena street.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 45.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	43.00 to 46.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	45.00 to 48.00

HOUSTON, TEX.—Standard Collapsible Rotary Bit Co., capital $75,000, chartered by O. M. Carter, G. S. Durant and J. H. Reed to build plant for manufacture of oil field drilling tools.

ORANGE, TEX.—Orange Car & Steel Co., structural steel fabricator and railroad car builder, will enlarge its plant and install additional equipment.

PORT ARTHUR, TEX.—E. P. Baker Inc., capital $150,000, chartered by E. P. Baker, Mrs. E. P. Baker and Mrs. E. L. Irwin, plans system of garages with repair shops in connection for repair of automobiles.

WICHITA FALLS, TEX.—Worthington Mfg. Co. has been incorporated with $50,000 capital to manufacture internal combustion engines by Vern R. Hartman and E. L. Ewen.

ENUMCLAW, WASH.—Enumclaw Tool Co. has been incorporated with $100,000 capital by Hans Thim, Alex Thim, Robert Thim and A. E. Johnson.

BLUEFIELD, W. VA.—National Armature & Electric Co., is taking bids on a plant 54 x 100 feet. Mahood & Van Dusen, Bluefield, are architects.

HUNTINGTON, W. VA.—Work has been started on additions to the plant of the International Nickel Co., which are to be completed during the present year.

WHEELING, W. VA.—Auto Top & Radiator Works, is having plans made for rebuilding its burned plant.

BARABOO, WIS.—H. E. French, city clerk, will close bids March 2 on one single acting triplex pump of 450 gallons per minute capacity.

GREEN BAY, WIS.—The L. M. Hansen Co., 113 West Walnut street, has taken the contract for remodeling and enlarging the local cold storage warehouse and branch plant of Swift & Co. The work will cost about $75,000.

MILWAUKEE—The department of public works will close bids March 15 for furnishing a complete stationary asphalt plant and equipment to the new municipal service center at Sixteenth and Canal streets.

MILWAUKEE—Architect H. J. Esser, 80 Wisconsin street, is completing plans for a 1-story addition, 40x125 feet, for the A. B. & B. Sheet Metal Works at 3300 Fond du Lac avenue.

MILWAUKEE—The Cortsa Mechanical Laboratories, 485 Sixth street, manufacturer of motors and other mechanical specialties, has incorporated its business under the present name, with a capital of 5000 common shares of no par value. Reimar C. F. Kartze is chief engineer and general manager.

MILWAUKEE—W. H. Roberts, 151 Farwell avenue, has taken the general contract to rebuild and add a third and fourth story to the factory building at 886 Greenbush street, recently sold by the Industrial Controller Co. to the O'Neil Duro Co., manufacturing paints, varnishes, etc. The Controller company some time ago purchased a larger plant.

RACINE, WIS.—Walker Mfg. Co., W. T. Walker president, Michigan and Hamilton streets, has let general contract to C. O. Johnson, 224 Lafayette street, for a 1-story foundry addition, 90 x 121 feet.

Business in Canada

WINNIPEG, MAN.—Bids addressed to the chairman of the committee on public utilities, will be received at the office of C. J. Brown, city clerk, until March 1, for the supply of six 5000 kilovole-ampere, single phase transformers, three for the terminal station here and three for the power station at Pointe du bois. Specifications, etc., at the office of the city of Winnipeg hydro-electric system, 55 Princess street.

DIGSBY, N. S.—The development of hydro power at the Upper Falls on the Sissiboo river near here is proposed by the local town council. The work will be in charge of H. H. Marshall, chairman of the committee appointed by the town. W. I. Snooks, electrical engineer, St. John, N. B., has prepared estimates and plans for a plant capable of producing 200 horsepower, which will cost $40,000.

CHATHAM, ONT.—The Chatham Malleable & Steel Co. will double capacity of its plant here, according to a statement issued by W. H. Westman, president. It is now engaged in enlarging its plant and installing new machinery, tools and general equipment, as well as re-arranging other machinery in its works. The company manufactures automobile parts and stampings, sugar machinery, etc.

FORT WILLIAM, ONT.—It is reported that $3,000,000 will be spent in the development of the Mattawin iron mines. John B. Mitchell, president of the federal reserve bank, Minneapolis, Minn., is interested.

FORT WILLIAM, ONT.—The city council has authorized the expenditure of $250,000 on a hydro-substation and transformer station here on which work is to be started as soon as plans have been completed. City clerk, Alex. McNaughton.

NEW LISKEARD, ONT.—Town council contemplates purchase of sewage plant equipment to include two pumps, etc.

OSHAWA, ONT.—W. C. Smith, city engineer, has been instructed to get definite proposals on new pump for waterworks pumping station, estimated to cost $4,000.

TRENTON, ONT.—Bids for the construction of a paper plant here for the Hinde & Dauch Paper Co., Toronto, Ont., are being called. The building which is to be started early next month will cost $150,000, while between $200,000 and $300,000 worth of machinery will be installed.

MONTREAL, QUE.—The Steel Co. of Canada Ltd., head office Hamilton, Ont., has let general contract to John MacGregor Ltd., 121 Bishop street, Montreal, for addition to plant here.

SHAWINIGAN FALLS, QUE.—The St. Maurice Valley Corp., Three Rivers, Que., has started work on a sulphite mill here.

All these Bonds having been sold, this advertisement appears as a matter of record only.

$12,000,000

THE OTIS STEEL COMPANY

First Mortgage Fifteen-Year 6% Sinking Fund Gold Bonds

SERIES "A"

To be dated March 1, 1926. Interest payable March 1 and September 1. Due March 1, 1941.
Authorized $25,000,000. To be presently issued, $12,000,000.

Redeemable in whole at any time or in part on any interest date on six weeks' notice, at 105 and interest up to and including March 1, 1931; thereafter at 105 and interest less ½% for each 12 months or part thereof elapsed after March 1, 1931.

Coupon bonds in denominations of $1,000 and $500, registerable as to principal.

Interest payable in New York at the office of Blair & Co., and in Cleveland, without deduction for any Federal income taxes to the extent of 2% per annum. Pennsylvania personal property tax and California personal property tax not exceeding 4 mills, Maryland personal property tax not exceeding 4½ mills, and Massachusetts income tax on interest not exceeding 6% on such interest refundable.

THE UNION TRUST COMPANY, CLEVELAND, TRUSTEE

Mr. E. J. Kulas, President of the Company, has briefly summarized his letter of February 16, 1926, (copies of which should be obtained from the undersigned) as follows:

BUSINESS, established in 1873, consists in the manufacture and sale of steel sheets, hot and cold rolled strips, plates, castings, pig iron, coke and by-products. The output is sold to a wide range of customers, including railroads, locomotive shops, boiler manufacturers, automobile manufacturers, oil companies, builders, machinery concerns, and other large steel companies. Net sales in 1925 were $28,897,687.

PURPOSE: These $12,000,000 First Mortgage Bonds are to be issued (a) to refund on or before August 1, 1926, the outstanding 7½% and 8% First Mortgage Bonds of which $8,750,000 were outstanding on December 31, 1925; (b) to pay off all bank indebtedness amounting to $1,000,000 on said date; and (c) to provide additional working capital. The annual interest charges on the new issue will be less than the total interest paid in 1925.

CAPITALIZATION: Upon completion of the proposed financing and the consummation of the exchange of all the existing Preferred Stock for new Prior Preference Stock under a plan to be presently submitted to its stockholders, the Company will have no outstanding funded debt except these new First Mortgage Bonds, and its outstanding share capitalization adjusted as of December 31, 1925, would consist of $11,612,300 par value Prior Preference Stock 7% Cumulative and 741,002 shares Common Stock (no par value).

FIRST MORTGAGE: Upon retirement of the existing Bonds these new Bonds will be secured, in the opinion of counsel, by a first mortgage on all the real estate, plants, fixtures, and equipment now owned by the Company, and will also be secured on any additional similar property acquired or constructed with the proceeds of the First Mortgage Bonds.

ASSETS: The general property account (less depreciation) is carried at $24,939,752; other assets consisting principally of securities owned in other companies are carried at $1,410,972; and the net quick assets after giving effect to present financing at $6,099,700; an aggregate of $31,665,800 after deducting various reserves, or 2.64 times the present issue of $12,000,000 First Mortgage Bonds. The adjusted Balance Sheet as of December 31, 1925 as prepared by Messrs. Ernst & Ernst, shows a ratio of Current Assets to Current Liabilities of 3.34 to 1.

EQUITY: The Company's capital stock now outstanding at current quotations represents an equity of approximately $19,300,000 junior to this issue of First Mortgage Bonds.

EARNINGS for the ten years ended December 31, 1925, available for interest and Federal taxes, after allowance for depreciation and after absorbing unusual inventory adjustments, sustained generally in the industry in 1920, and 1921, averaged $2,138,306 per annum, or about three times the annual interest on the present issue.
Net profits for the year ended December 31, 1925, available for interest and Federal taxes, after allowance for depreciation, were $2,263,402, or about 3.15 times said annual interest charges.
It is estimated that net profits for the first quarter of 1926 available for interest and Federal taxes will alone be sufficient to cover the annual interest requirements on the present issue of new Bonds for the entire year 1926.

SINKING FUND payable semi-annually in bonds or cash, commencing March 1, 1929, sufficient to retire 50% of the present issue of Series "A" Bonds by maturity.

PLANTS are located in the City of Cleveland and have a total combined annual capacity of from 555,000 to 575,000 tons of finished steel products.

The legal proceedings in connection with the issue are being passed upon by Messrs. Cravath, Henderson & de Gersdorff, New York, and Messrs. Tolles, Hogsett, Ginn & Morley, Cleveland.

Interim Receipts or Temporary Bonds will be deliverable in the first instance. All offerings are made "when, as and if" issued and received by us and subject to approval of proceedings by counsel.

Price 98½ and interest to yield 6.15%

Blair & Co., Inc.

The Union Trust Co.
Cleveland

Otis & Co.

Hayden, Miller & Co.

R. V. Mitchell & Co.

The statements presented in this advertisement while not guaranteed are obtained from sources which are believed to be reliable.

"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertiser and by referring to advertisement you can get full particulars about products.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Pennsylvania Engineering Works, New Castle, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 12th & Etna Sts., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

ALLOYS
Browne, deCourcy, Inc., 8 West 40th St., New York City
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, New York.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Leavitt, C. W., & Co., 30 Church St., New York City.
Rogers, Brown & Crocker Bros., Inc., 21 E. 40th St., New York City.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM TUBING
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Adamson Machine Co., The, Akron, Ohio.
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Pittsburgh Malleable Iron Co., 34th & Smallman Sts., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Zanesville Malleable Co., Zanesville, Ohio.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., The, 3675 E. 78th St., Cleveland, Ohio.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
National Tube Co., Frick Bldg., Pittsburgh, Pa.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 36th St., Cleveland, O.

BARS (Acid Resistant)
Alcumite Corp., The, Dayton, O.

BARS (Alloy)
Central Steel Co., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

BARS (Concrete Reinforcements)
Bethlehem Steel Co., Bethlehem, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Pollak Steel Co., The, Cincinnati, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Truscon Steel Co., Youngstown, O.

BARS (Iron and Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Milton Mfg. Co., The, Milton, Pa.
Morris, Wheeler & Co., 30 th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.
Republic Iron & Steel Co., Youngstown, O.
Truscon Steel Co., Youngstown, O.

BARS (Steel)
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Steel Co., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS, STEEL (Electric Furnace)
Timken Roller Bearing Co., The, Canton, Ohio.

BASKETS (Wire)
Meyers, Fred J., Mfg. Co., The, Hamilton, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Phoenix Iron Co., The, 20 So. 15th St., Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Snead Architectural Iron Works, Louisville, Ky.

BEARINGS (Ball)
Hoover Steel Ball Co., Ann Arbor, Mich.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffman Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Hyatt Roller Bearing Co., Newark, N. J.
Keystone Bronze Co., 39th St., Pittsburgh, Pa.

BEARINGS (Motor)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Roller)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffman Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Hoover Steel Ball Co., Ann Arbor, Mich.
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BELT CEMENT AND DRESSING (Leather)
Williams, I. B., & Sons, Dover, N. H.

BELT DRESSING (Liquid & Paste)
B & H Engineering Laboratories, Inc., 4701 Grove St., Oakland, Calif.

BELT LACING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.
Williams, I. B., & Sons, Dover, N. H.

BELTING (Chain)
Link-Belt Co., 910 S. Michigan Ave., Chicago, Ill.

BELTING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.
Williams, I. B., & Sons, Dover, N. H.

BENCHES AND FRAMES (Drawing)
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., The, Cuyahoga Falls, O.

BENDING AND STRAIGHTENING MACHINES
Cleveland Punch & Shear Works Co., 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kane & Roach, Niagara and Shonnard Sts., Syracuse, N. Y.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton-Abramsen Engineering Co., Park Bldg., Pittsburgh, Pa.

BENZOL AND TOLUOL RECOVERY PLANTS
Koppers Co., The, Union Trust Bldg., Pittsburgh, Pa.

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Bethlehem Steel Co., Bethlehem, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.

BILLETS (Forging, Alloy Steel)
Bethlehem Steel Co., Bethlehem, Pa.

BILLETS AND BLOOMS
American Rolling Mill Co., Middletown, O.
American Tube & Stamping Co., The, Bridgeport, Conn.
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Central Steel Co., The, Massillon, Ohio.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Illinois Steel Co., 208 South La Salle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Interstate Iron & Steel Co., 104 S. Michigan Ave., Chicago, Ill.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

BLANKS (Ring, Gear and Sprocket)
Akron-Selle Co., Akron, O.

BLAST FURNACES—See FURNACES (Blast)

BLOWERS
General Electric Co., Schenectady, N. Y.
Ingersoll-Rand Co., 11 Broadway, New York City.
Spencer Turbine Co., Hartford, Conn.

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